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SPELLING CHECKER AND MAIL-MERGE NOW AVAILABLE

PROTEXT is without doubt the most sophisticated word processor you will find on any home micro. It is of comparable standard to business packages costing over £200 but has been developed for the AMSTRAD 464/664 and 6182 machines and is 100% machine-code. We know that PROTEXT is the fastest program of its type currently available (eg. global search and replace on a three page file in under a second!). Bearing in mind the range of features included and their ease of use, this package is rightly acclaimed as the No. 1 word processor for Amstrad owners. Compare these features and benchmarks with any other similar products.

PROTEXT FEATURE SUMMARY

File commands — Super fast Load, Merge and Save, Cat, Print (to printer/screen/file)
Cursor Movement — By character/word/line/paragraph/screen, to start or end of line, to start or end of text, to line number, to place marker, to margin.
Inserting and deleting — Insert/overwrite mode, insert character or line, delete character forwards or backwards, delete word. Delete to end of line.
FIND and REPLACE — Wildcards, all or part of text, case specific, whole word or part of word, find control codes.
Block commands — Move/copy/delete/save/print/format.
Markers — 2 block markers and 10 place markers may be set anywhere.
Formatting — Word wrap, right justify, variable left and right margins.
Ruler lines — Unlimited number of ruler lines, to define margins and tabs. Decimal tabs.
Print options — Headers/footers, page numbers, variable line spacing, variable page length and margin sizes, conditional page throws, odd and even page features, continuous or single sheets, multiple copies.
Printer features — Including emphasized, condensed, double-strike, elite, italics, enlarged, pica, NLQ, subscript, superscript, underline. Built in Epson printer driver, ability to easily define your own printer driver and save to disc.
Help feature — Optional on screen command summaries.
Built in character sets — Danish/French/German/Italian/Spanish/Swedish.
Other features — Non break space, display tabs, returns and hard spaces, soft hyphens, word count, case conversion, copy ruler, 60 page easy to read manual with full index and glossary of terms.

"I AM STUNNED AT PROTEXT—IT KNOCKS POCKET WORDSTAR INTO A COCKED HAT" *— AMTIX ISSUE 1* ***"DON'T MISS IT. IT IS SUPERB"*** *— POPULAR COMPUTING WEEKLY* ***"MILES AHEAD OF THE AMSWORD TYPE PROGRAMS"*** *— AMSTRAD USER*

BENCHTESTS

A standard file of 775 words (4,785 characters) was used to carry out the following benchtests (all timings are in seconds):

	PROTEXT	TASWORD/AMSWORD
1 LOAD text file	4.7	10.2
2 SAVE text file	4.9	18.9
3 Re-FORMAT paragraph (85 words)	0.4	15.3
4 Re-FORMAT entire text	2.5	Not Possible
5 Move directly to start of text	under 0.1	2.2
6 Move directly to end of text	0.2	2.2
7 REPLACE 'the' with 'THE' (45 occurances)	1.7	34.1
8 SCAN entire text	2.2	7.2
9 MERGE file to centre of text	4.0	Not Possible
10 MERGE file to end of text	3.8	12.4
11 MOVE 85-word paragraph	under 0.1	6.8
12 PROGRAM LOAD TIME		
DISC	12.9	14.6
ROM	Instant	Not Available

PROMERGE/PROMERGE PLUS

This major addition to the PROTEXT word processor combines a fully flexible mail merge program allowing PROTEXT to produce individualised documents in one single print run.

PROMERGE —
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Read data from file or keyboard.
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Typewriter mode – for envelopes etc.

PROMERGE PLUS —
PROTEXT ENHANCEMENTS (ROM version only)
All the features of PROMERGE together with –
Background printing – edit one file while you print another.
Two file editing – switch between two files in memory.
Cut and paste – any block of text can be moved to any position – allows multiple column layout.
Tasword users – automatically converts your old text files.
Calculator – a simple on screen calculator for those invoice totals etc.
6128 OWNERS
PROMERGE PLUS MAKES full and sensible use of your extra 64K memory but also functions with smaller files on the 464 and 644 machines.
Also uses D K Tronics 64K RAM expansions.

PROSPELL

★ Checks your spelling ★ Proof reads your documents ★
★ Solves your word puzzles ★

— How to use PROSPELL —

The spelling checker can be called directly from within PROTEXT to check the current file in memory or any file on disc. Alternatively, PROSPELL will check any ASCII file produced by other Amstrad word processors, including Wordstar type files.

— Features available —

Add words to the dictionary/Correct word/ignore word/Look up correct spelling/View word in context/Delete words/List words/Initialise new dictionary...PLUS...

— Word Puzzle Features —

The 30,000 word Dictionary can be used in a number of useful ways.

FIND WORD — Your can enter a word pattern using ? for an unknown letter and * for a group of unknown letters. PROSPELL will list all words in the dictionary which match this pattern.

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Together these features will prove invaluable to crossword solvers and compilers.

— THE POWER OF PROSPELL —

Some spelling checkers work as slowly as 150 words per minute. PROSPELL works at up to 2000 w.p.m.

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INJURED
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Trailblazer
Available November

COMMENT

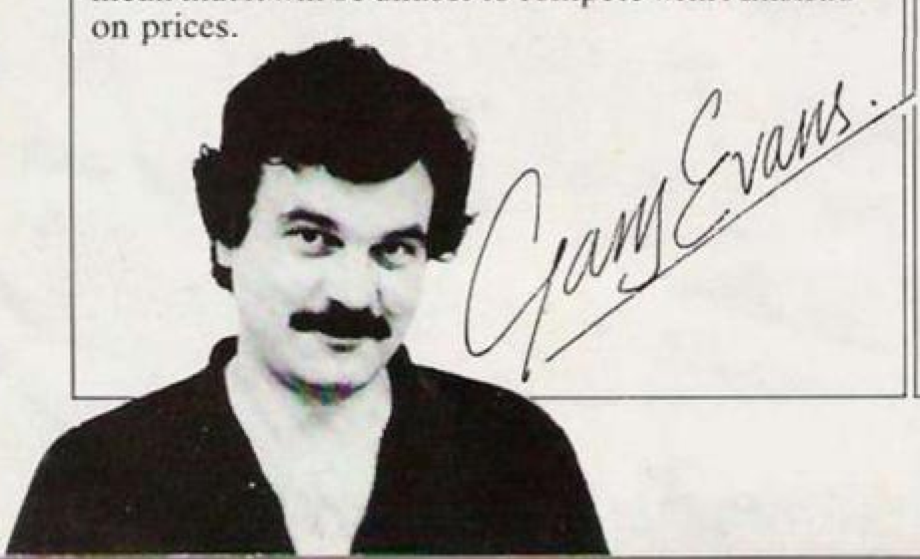
The worst-kept secret of the computing year, the fact that Amstrad was to launch a PC compatible computer, became public knowledge on September 2 when the range of new machines was launched officially. The degree of interest in the activities of Alan Sugar's company was apparent from the fact that the launch was one of the biggest in the U.K. for many years. Journalists from all over the country and many from many European countries crowded into a central London conference centre to be treated to a half-hour audio-visual show singing the praises of the company and outlining its plans. After that show, those present were treated to a skilful performance from the man himself during a short Q&A session.

The series of Amstrad PCs is reviewed elsewhere in this issue but those familiar with the PC specification will find few surprises among the details of the hardware. Of far more interest is the Amstrad pricing structure and the way the hardware is to be marketed.

With the PC1512, Amstrad is following its successful policy of taking a technology which is tried and tested and applying its production engineering skills to design a system which performs as well or better than similar products yet can be manufactured, in the Far East, at very low cost. The aggressive pricing will be achieved with marketing campaigns tailored to the perceived needs of the market.

The arrival of the low-cost Amstrad PC will have a dramatic effect on the PC market in general. In particular, many companies will have to re-assess their software prices. Many software producers have already indicated that the price of many of their products will be reduced dramatically in the near future.

The combination of low-cost hardware and competitively-priced software will stimulate the PC market, both in the business area and in the home. It remains to be seen what the reaction of IBM will be to the erosion of its market share but, as Sugar pointed out at the launch of the PC1512, the overheads of a multi-national company like Big Blue mean that it will be unable to compete with Amstrad on prices.



Tandy challenge the Amstrad price war

Amstrad may have declared the sub-£500 PC price war officially open but it does not look as if it will be the only major company in that area of the market for long. Tandy has just announced the release of its new £449 1000EX, a fast, small compatible with 256K RAM, bundled monochrome monitor and bundled *Deskmate* integrated software. The company also offers a version with a colour monitor for only £100 more.

Perhaps even more important than the fact that Tandy has a major competitor to the Amstrad PC, however, is what it does to the relationship between Tandy and Amstrad. For the last year, Tandy has sold and distributed Amstrad CPC and PCW home computers but it will not be stocking the Amstrad PC, for obvious reasons.

There is also a question-mark about whether or not Tandy will continue to stock older Amstrad computers, or the new Spectrum Plus 2. "We have stocks of the 4643, 6128 and PCW machines but it is now unlikely that we will buy any more products from Amstrad," says Vince Holton of Tandy. "It is a while-stocks-last situation."

The collapse of the Amstrad relationship with Tandy must have some effect on the ability of Amstrad to get its products to customers, as the vast Tandy distribution network includes a number of prominent high-street shops and a not inconsiderable advertising budget.

Tandy, meanwhile, is looking forward to competing with Amstrad in the PC market and says it hopes the EX will "bridge the gap between home and business computing, being also ideal for use in education environments."

The only real advantage Amstrad may have over Tandy on the 1000EX is that the EX does not take standard PC expansion cards, although it offers proprietary Tandy slots for extra memory, RS232 communications, mouse and external drives. The EX can also only use a single drive internally; additional drives or a hard disc must be added as external boxes.



Will IBM fight back?

From computer peripherals to PC clones

Peripheral giant Opus has finally released its budget PC clone, the PC II. At £499, the machine compares unfavourably in terms of price to some on the market but it is built to a very high specification. The motherboard contains the NEC V20 processor which is switchable between 4.77 and 8MHz, three times faster than the standard IBM PC.

Most machines in the low-cost PC class allow memory expansion up to 640K on the motherboard. On the PC II, however, expansion up to 1,024K is possible, which creates a 384K RAM disc giving much faster access times than a conventional disc drive.

The base model, known as System One, has six free expansion slots, two having been used by the graphics card and parallel printer port. The motherboard also features a built-in, battery-powered clock/calendar and a joystick interface.

At a time when many companies are facing legal action from IBM regarding the legality of the BIOS of their products, Opus has developed its enhanced version, fully-copyrighted and registered in the States. Opus is confident of an extremely high level of compatibility and publishes a full list of the programs which will run on the machine, including titles such as *Lotus 1-2-3* and *SideKick*, two classic tests of compatibility.

Complete with a high-quality keyboard and 12in. monitor, the Opus machine is certainly one the other manufacturers will have to watch.



Rivals to Amstrad

In a move to repeat the success of the Amstrad CP/M-based PCW word processing machines, an army of new CP/M machines looks as if it will be unleashed on the increasingly overcrowded small business/home market.

Commodore, Tatung, Memotech and Saga – veteran Spectrum keyboard manufacturer – have all either announced or are rumoured to be planning new all-in-one CP/M office offerings in time for Christmas.



The first such bundle arrives with the semi-new – i.e., it has never been really launched properly – Commodore 128D, which is bundled with the MPS1000 near letter quality printer, a monochrome monitor and an integrated software suite for £749.95.

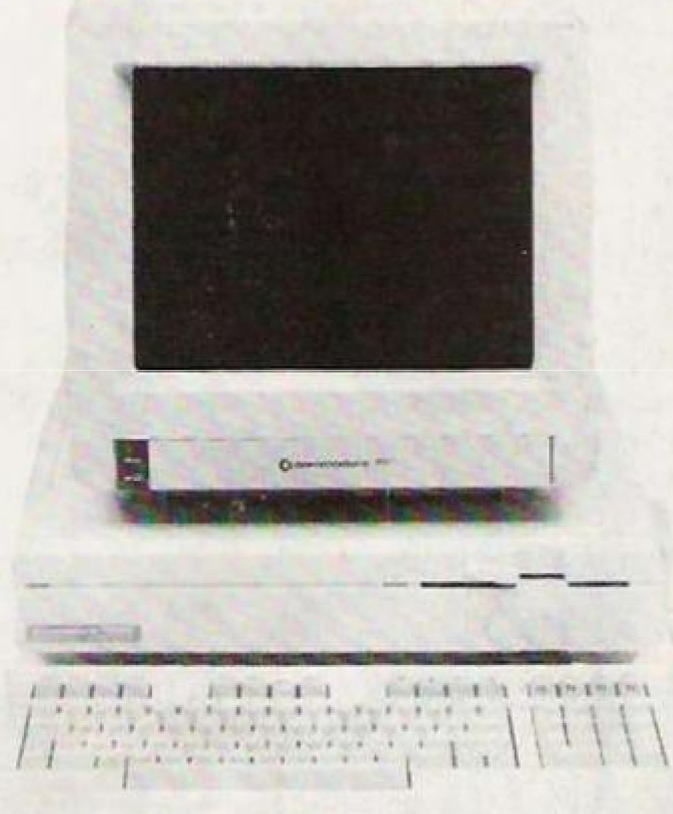
The Commodore 128D is essentially a Commodore 128 with a detached keyboard and built-in disc drive – see review in the March *Your Computer* – while the integrated suite comprises word processor, database, spreadsheet, high-resolution graphics and integrated accounts applications.

Commodore is doing the bundling jointly with Total Office Software Ltd, which wrote the bundled software and started selling it by mail order and through selected stores in September. The move is not, however, regarded as a major plank in Commodore long-term plans but as a way of slightly blunting the massive edge Alan Sugar seems to have with the Amstrad offerings.

Events at Spectrum peripheral manufacturer Saga look a good deal more interesting. Saga has said it hopes to have a sub-£350 Amstrad PCW-killer known as the Compliment available before Christmas. The Z-80-based system is likely to start as an upgrade kit which effectively turns the Spectrum into a business machine.

The package is rumoured to include a new keyboard, 3.5in. 256K disc drive, NLQ printer, the Saga *Last Word* word processing software and utility which allows the transfer of cassette software to disc. It is expected the system will retail at about the £350 level.

The least clear plans among the new CP/M entrants are the happenings at Memotech, which now seems to be attempting to re-establish itself in the sub-£400 small business CP/M market after early attempts forced the firm to the financial brink.





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Nexus competition

The winner of the Nexus competition held in the July issue of *Your Computer* was S. W. Hatcher from Winnersh, Berkshire. His tie break sentence was: Digitisers are to graphics what microwave ovens are to cookery – not absolutely essential but more than useful. Twenty-five runners up will receive copies of the game: Martin Thurlow, Coventry; Jolyson Grace, Chester; Miss Joy Nicholson, Torquay; Mr. D. Williams, Thornton; Mr. C. Lewis, Kingham; Jason Shipman, Ellesmere Port; Gordon Shearer, Rothes; Mr. J. M. Bryson, Swindon; Jason Salter, Seaford; Gerry Galloway, Liverpool; Rod Shaw, Nailsea; Dominic Bourn, Wolverhampton; Mr. W. S. Youngs, Shoeburyness; Adrain Smith, Morpeth; Mr. E. A. Cook, Cwmbran; Mr. G. Newman, Co Tyrone; Ian Peter Douglas, Plymouth; Lars Christensen, Denmark; Roger Fleuty, Eastbourne; D. R. Williams, IOW; Jason Dobbs, Newton Abbot; Ian D. Flory, Banff; Ola Sjoestrand, Sweden; Luis Miguel Pereira, Portugal; Lee Russell, London E7.

Apple vs the rest of the world

Apple is set to attack the Atari ST and Commodore Amiga markets with a fast, new 16-bit Apple II machine which will sell for less than £1,000. The Apple IIGS is a radically-updated version of the Apple II, with 256K RAM expandable to 8MB, full Apple II compatibility, bundled 3.5in. 800K disc drive and Macintosh-style mouse-driven software, mouse and monochrome monitor for £995.

The IIGS seems aimed squarely at the Atari ST market, with its smart Mac-style colour graphics, fast processor – the 16-bit 65C816 running at 2.8MHz – and built-in Ensoniq 32-oscillator synthesiser chip with 64K of dedicated RAM.

While the IIGS is later to market than either the Amiga or ST, its graphics and sound capabilities compare very favourably and there is already a software base of more than 10,000 Apple II packages which it can run from the time Apple U.K. starts delivery of the machines in December.

Unfortunately, Apple is not really targetting the IIGS as the excellent games machine it could be – likewise the Amiga and ST – but rather as a Mac-style business solution for budget-conscious small businesses and professionals who cannot take the alleged crudity of low-cost Amstrad or PC offerings.

Neither does the release of the machine mean that existing Apple II products will fall substantially in price. Apple U.K. is discountinuing the Apple IIc and Apple IIe in the U.K., although the machines will still be sold in the U.S., so while there may be some bargains on Apple II equipment in the next few weeks as Apple clears its shelves to make way for the IIGS, no long-term cheap Apples will be available.

The IIGS should give Atari and Commodore a good run for their money. The ST is, after all, based on the ideas Apple refined in the Lisa and Macintosh machines. Now that Apple is offering that, some type of software technology and power in a box which starts to compete with the ST for price, people may opt for 'the original' instead of the imitative Atari ST.

Atari may counter the new Apple machine with its rumoured TT – a sequel to the ST – 2MB, 68020 processor-based machine which should offer even more speed and power than the existing 1040 at only a slightly higher price. Moving in a new machine above the 1040 ST would give Atari the chance to reduce prices on the rest of its line and make the ST seem even more competitive against the new Apple.

Commodore, meanwhile, will be increasing pressure to reduce the price of the Amiga, with machines which offer more software and a similar specification available at cheaper prices than that of Commodore.

The ST becomes a PC

Atari will not be following Amstrad into the PC arena but it looks as if the long-awaited Atari IBM-compatibility add-on for the ST should be ready and in the shops in time for Christmas.

According to sources inside Atari, the add-on will sell for less than £200 and should allow the ST to run most standard packages written for the PC. The device was previewed at the Personal Computer World Show in London, where eager ST owners were able to see the hardware/software emulation system in action.

The add-on box provides an 8086 processor – the same fast processor as used in the Amstrad PC – a standard 5.25in. floppy disc drive for loading PC programs and some proprietary software to drive the system. Like the Commodore Sidecar for the Amiga, there are limits to the PC compatibility the device can provide; there is no way it can offer the full number of IBM expansion card slots of a standard PC.

For most jobs, the IBM PC add-on of the ST should be more than equal to the task. Atari says the move is not an attempt to turn the ST into a cheap PC clone but rather to make the vast library of PC software available to its users.

The Atari delay in shipping the device – it was promised early this year and first shown in the spring – is probably due just as much to a desire not to inhibit the development of true ST software as it is a factor of development problems on the add-on device.

Atari has also had to make sure that the add-on box was sufficiently cheap that people could not say it would be cheaper for them to buy an inexpensive PC clone than it would be to buy the ST IBM PC add-on. Atari appears to have solved that problem successfully.



YOUR COMPUTER

AUTUMN GOLD

TREASURE HUNT

Rules and Instructions

Beginning this month, *Your Computer* is sponsoring the Autumn Gold Treasure Hunt Competition. With the October, November and December issues of the magazine, special treasure hunt cards, like the one on the front of this issue, are to be given away. By collecting the cards, using the numbers and solving the three picture puzzles, you could find the secret location of the hidden treasure chest and win the first prize of £1,000. There are also 25 instant prizes offered each month, with the chance to win more prizes in the New Year.

Before you attempt to uncover any of the boxes, read the instructions on the card carefully. There are three possible ways to win. The first involves revealing the hidden boxes on your card by scratching off seven of the eight gold leaves, taking care to leave one intact. When you have done that, if there are six numbers plus one instant prize token you have a winning treasure hunt card.

To claim your prize, send your card with your name and address and details of where you bought the magazine to *Your Computer*, 79-80 Petty France, London SW1H 9ED, remembering to keep a record of the numbers on your card. Details of each month's instant prizes are to be found on the contents page of this, the November and December issues. Remember that to claim using this method no black leaves must be uncovered on your card.

If you have removed all of the gold leaves on your card you still have a chance of winning an instant prize. Provided that one of the boxes you have revealed contains an instant prize token you can save it and try to collect another card with an instant prize token on it, thereby creating another winning combination. The January, 1987 issue of *Your Computer* will have details of the prizes and how to claim using this method.

Whether or not your treasure hunt card entitles you to one of the instant prizes, it always contains a set of six numbers which will help in your quest for the hidden treasure. Each month there will be a different set of numbers to incover which relate to that month's picture puzzle.

Study the picture opposite carefully. There is a way of using the numbers from your card and the clues in the picture to find a single *clue* word somewhere – not in the picture or on the card. Quite simply the picture leads to a source of information and the numbers lead to a specific item within that source. What to do with the numbers is also contained in the picture. The source of information can be found in any good bookshop or public library or viewed at the *Your Computer* offices. You must telephone us first to tell us what it is you require so that we can ensure nobody gains an unfair advantage. Once we have checked your solution we will arrange an appointment. Each month ultimately leads to a single word and the three words will tell you where the treasure is hidden. Write and tell us the secret location and the first correct answer out of the hat will win the £1,000 prize.

Competition Rules

The winner of the competition will be the first correct answer pulled out of the hat.

The name of the winner will be announced in the February issue of *Your Computer*.

All entries must arrive at the *Your Computer* offices by the 19th December, 1986.



Only one entry per household.

Entries to the competition cannot be acknowledged.

No employees of Focus Investments nor their agents or close relatives may enter the competition.

The decision of the Editor in all respects of the competition will be final.

No correspondence with regard to any aspect of the competition will be entered into.

Focus investments assumes no responsibility or liability for any complaints arising from this competition.


IF MEANING IS DEFINED
AS THE SUM OF ALL THAT'S SAID
THEN WORDS MUST BE BLIND
ON PAGES THAT WERE READ



DAN DARE
PILOT OF THE FUTURE
THE STORY SO FAR...
COLONEL DAN DARE HAS LOCATED THE ASTEROID BASE OF HIS ARCH ENEMY – THE EVIL MEKON...HE MUST DESTROY THE BASE AT ALL COSTS! BUT FIRST, HE MUST DEFEAT THE DEADLY TREENS AND THEIR EVIL MASTER...
JOIN COLONEL DARE AND HIS VALIANT COMPANIONS ON THEIR JOURNEY THROUGH PERIL IN...
DAN DARE – PILOT OF THE FUTURE.
THE FATE OF THEIR MISSION DEPENDS ON YOU!!
TO BE CONTINUED...

This chart is based on the MicroScope chart as compiled by Gallup.

MicroScope GALLUP

MicroScope is the weekly trade paper of the microcomputer industry. If your computer store doesn't display the latest MicroScope chart, ask the manager to call Mark Salmon on 01-631 1433 — we'll send a copy every week.

THE CHARTS

TOP 20

1	GHOSTS AND GOBLINS	ELITE	AM SP CO
2	ACE	CASCADE	CO C16 SP V2 +4
3	DRAGONS LAIR	SOFTWARE PROJECTS	AM CO SP
4	GREEN BERET	IMAGINE	AM CO SP
5	KNIGHT RIDER	OCEAN	AM CO SP
6	JACK THE RIPPER	GREMLIN GRAPHICS	AM MS SP
7	LEADER BOARD	US GOLD	CO
8	YIE AR KUNG FU	KONAMI	AM BB CO C16 EL MS SP
9	KUNG FU MASTER	US GOLD	AM CO SP
10	DAN BEAR	VIRGINN	AM CO SP
11	PARALAX	OCEAN	CO
12	KNIGHT GAMES	ENGLISH	AM CO
13	FULL THROTTLE	MICRO MEGA	AM CO
14	SUPER CYCLE	EPIX	CO
15	DYNAMITE DAN	MIRORSOFT	SP
16	MIAMI VICE	OCEAN	AM CO SP
17	STAINLESS STEEL	MIKRO GEN	AM SP
18	INTERNATIONAL KARATE	SYSTEM 3	AM CO MS SP
19	CAULDRON II	PALACE	AM CO SP
20	COMMANDO	ELITE	AM BB CO C16 EL SP

BUDGET TOP TEN

1	SPEED KING	MASTERTRONIC	AM CO C16 MS
2	THRUST	FIREBIRD	AM AT BB CO SP
3	NINJA MASTER	FIREBIRD	AM CO SP
4	KANE	MASTERTRONIC	AM BB CO EL SP
5	NINJA	MASTERTRONIC	AT CO MS
6	VIDEO OLYMPICS	MASTERTRONIC	SP
7	MOLOCULE MAN	MASTERTRONIC	AM MS SP
8	KIK START	MASTERTRONIC	AT CO C16
9	FORMULA ONE	MASTERTRONIC	AM AT CO C16 MS SP
10	ROLE IN ONE	MASTERTRONIC	CO C16 MS

BUBBLING UNDER

ELITE	ACORNSOFT
BOMB JACK	ELITE
WINTER EVENTS	ANCO
BOBBY BEARING	THE EDGE
GRAHAM GOOCH TEST	AUDIOGENIC
HEARTLAND	ODIN
WAY OF THE TIGER	GREMLIN GRAPHICS
THE SOLD II	HITSQUAD
SPEECH	SUPERIOR

MACHINE CODES:
SP = SPECTRUM; CO = COMMODORE; AM = AMSTRAD; MS = MSX; AT = ATARI; V2 = VIC20

ALLEYKAT

► C64 ● Hewson ● Shoot-'em-up ● Francis Jago ● £8.95

Everyone almost expected this game to fail. After *Paradroid* and *Uridium*, both of which were real classics, *Alleykat* had to be a let-down, didn't it? Contrary to what everyone expected, Alleycat is another great game from Andrew Braybrook. Undoubtedly it is simpler than Paradroid but Uridium was scarcely the most complex game of all time, yet it was still one of the most playable.

Describing Alleykat is almost impossible. It is a space-racing simulation. It features some of the smoothest vertical scrolling seen on the Commodore 64 and should keep trigger-happy gamesters happy for hours.

Once the game is started, you must choose which race you will enter first. At the beginning, as you have no money, only five races can be entered. They are set on various landscapes, with various objectives. Each race is measured in laps and to make life a great deal more



The race is on . . .

difficult, there is a large variety of aliens who would rather you failed to complete the course.

If the player manages to complete a race, he is awarded bonus points for speed, aliens killed and race completion. They are added to the player's points tally, and money varying from 400 to 20,000 guineas, depending on the difficulty and length of the race.

As with all Braybrook games, the background and sprite animation is faultless and in one section of Alleykat it is truly superb. When pulling back on the joystick during the race, your craft does a loop-the-loop – very useful if being chased by a Katerkiller.

GRAPHICS
● ● ● ●
SOUND
● ● ● ●
PLAYABILITY
● ● ● ●
VALUE FOR MONEY
● ● ● ●
OVERALL
● ● ● ● ●

Without doubt, Braybrook is one of the programming talents of the moment and this game reflects that. It lacks the depth of Paradroid but it has the immediacy which made Uridium such a smash.

Coming to earth soon

Activision has announced that it has acquired the rights to the film which will be one of the biggest hits this year.

Produced by George Lucas, famous for such blockbusters as *Star Wars* and *Raiders of the Lost Ark*, the film is called *Howard the Duck*, and so is the game.

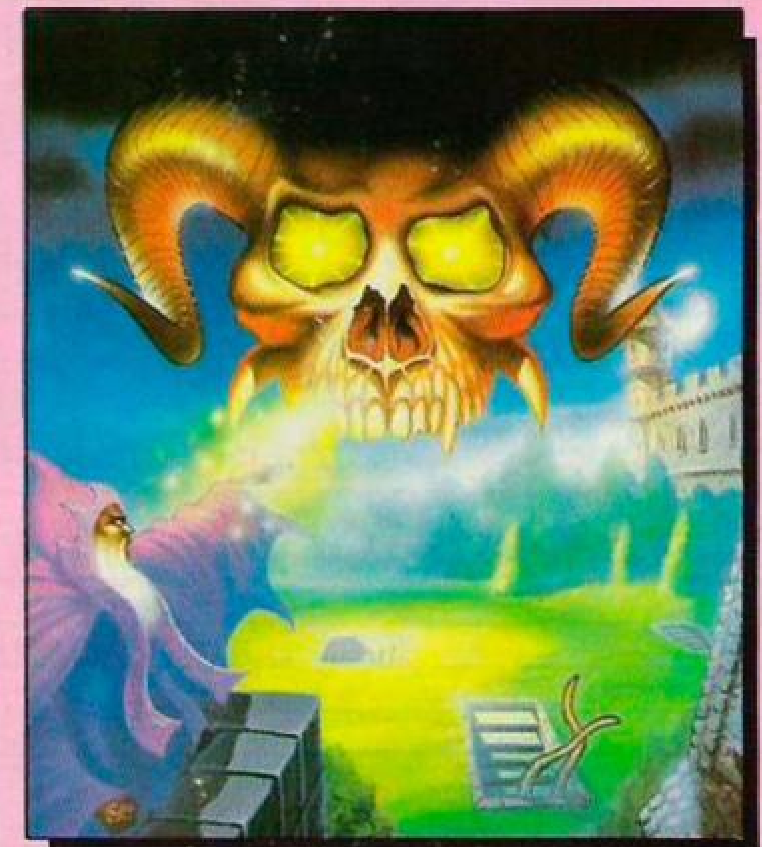
Accidentally brought to earth by a scientist, Howard is an English-speaking, walking, eating duck. Being only 3ft. tall, he has his problems and they are not helped by the fact that he has no super-powers.

You play Howard, in a fantasy arcade adventure, and with just brains, and a little



Any self-respecting fan of *Marvel* comics will recognise Howard the Duck immediately as one of the most famous anti-heroes of all time.

Duck-Fu, you must save the earth. As well as Howard, Activision is also offering *Hacker II*, a new golf program for MS-DOS machines.



The Druid cometh

One game which looks set to take the market by storm in the next two months is the new one from Firebird. Called *Druid*, it uses a well-known arcade game as the idea for a classic arcade adventure. Released initially on the Commodore 64, with Spectrum and Amstrad versions to follow, it combines elements of shoot-'em-up, and a massive playing area, to create an excellent all-round game. Look for a full review in next month's issue of *Your Computer*.



Knight Rider sees daylight

Just as everyone has begun to forget that it existed, Ocean has decided finally to release *Knight Rider* and it should be in the shops soon. Based, as everyone must know, on the television series, it places the player in Michael Knight's shoes. At first glance, it looks as if the game may have been worth the wait but all will be revealed in a full review next month.

As well as Knight Rider, another long-awaited game is almost ready, *Street Hawk*. Using a scrolling screen, you must scream round the screen on your superbike, shooting baddies and dodging goodies. The Spectrum version had very good graphics and good attention to detail.

Ocean has also announced two more film deals. Fans of Sly Stallone will be glad to hear that *Cobra* is soon to be a game and if the film is any criterion it should have a great deal of shooting in it. The other film, *Top Gun*, has not yet been released in the U.K. but is based on the U.S. Navy, so that gives some clues to the scenario.

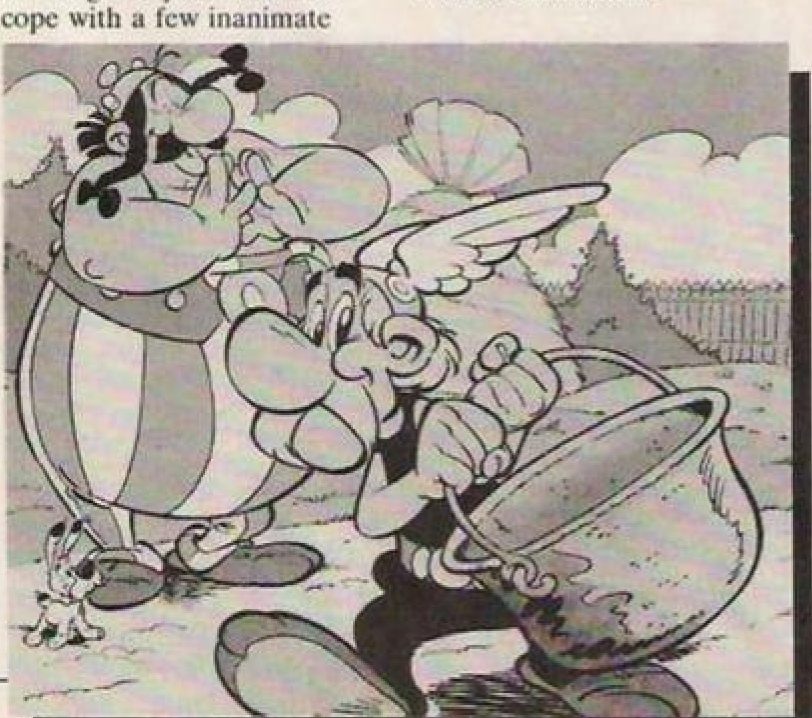
Asterix is on his way

Melbourne House, the company responsible for starting the Karate craze with *Way of the Exploding Fist*, has leapt back into the same market with the release of *Fist II*. Intended to carry on where its predecessor left off, it has moved from static backgrounds to a horizontally-scrolling one, which adds greatly to the game's visual impression.

The graphics have, as would be expected, increased in size and quality, and surely must be the best seen on a Karate game. As with the original game, the player is required to dispose of various enemies but in this game you must also cope with a few inanimate objects, such as pieces of wood which need to be split.

Also new from Melbourne House, and one of the longest-awaited new games, is *Asterix and the Magic Cauldron*. Set in Gaul about 50 BC, you play Asterix and you must find all eight pieces of the magic cauldron to keep the Romans at bay. Featuring many of the well-known characters, such as Obelix and Getafix, the game should be released in the not-too-distant future.

Those two titles are complemented by a new adventure from the programmers of *Hampstead* and *Terrormolinos*.





Jack attack

In one of the most ambitious moves yet in the games software industry Elite, producer of such classics as *Commando* and *Ghosts and Goblins*, has announced that it is converting *Space Harrier* for home machines. This coin-op machine which, with its revolutionary graphics and sound, has been taking the arcades by storm, will be converted for a range of home computers.

Anyone who has seen the original game will wonder whether a conversion is possible but Elite promises the game for Christmas, so all we can do is wait.

Although Space Harrier is the really big news, Elite has also announced a number of other releases which should ensure popularity in the run-up to christmas and beyond. As well as the long-awaited *Scrooby Doo* and *Paperboy*, Elite will be releasing three new Capcom games, *Commando 86, Bomb Jack II* and *1942*.

Commando 86 is a new, improved version of the original, with the added bonus of simultaneous two-player mode. Bomb Jack II is another update, with further adventures of our cute little hero. 1942 is an aerial shoot-'em-up, with excellent graphics.

To finish the round-up of new Elite products is *Ikari Warriors*, its first licensing deal with a new arcade company, SNK Corporation. Similar in some respects to Commando, it features two-player mode, and should be available in November.

Computer Music at it's best...



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- EXCEPTIONAL VALUE

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- SAMPLE ANY SOUND • SYNC FACILITY • MIXING OF SAMPLES
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- REALTIME PITCH HARMONISER

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Karate hits the Amstrad

However many fighting games there have been, it seems that more are just round the corner. As Melbourne House talks about *Fist II* and Endurance releases *International Karate* for the Amstrad, Martech has decided to launch *Uchi Mata,* a judo game based on the experiences of Brian Jacks who, when not competing in Superstars, was apparently a judo player.

To be released simultaneously on the 64, Spectrum, Amstrad and MSX, it promises to contain everything *Rock and Wrestle* did not – and some more. As you can see from the screenshot, a great deal of care has been taken over the graphics, which are as realistic as possible.

Attention to detail is obvious, as Martech took extensive videos of judo players to make sure each move was reflected accurately. Programmed by two ex-Taskset programmers, it should be available very soon.

As well as Uchi Mata, Martech has a range of exciting products leading up to Christmas, which should establish it as one of the premier U.K. software houses. The first title after Uchi Mata will be *Nimitz.* Based on life aboard the U.S.S. Nimitz, an aircraft carrier, it will allow the player to control anything aboard, including the ability to fly any of a number of aircraft stored

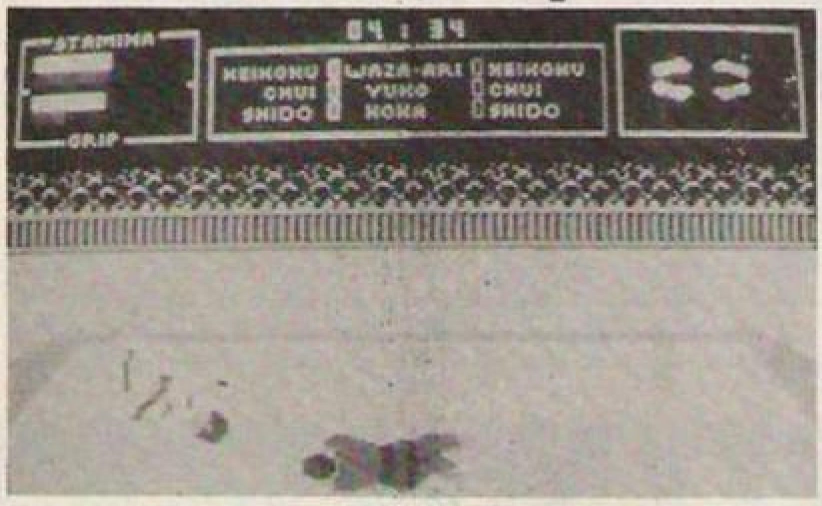


on deck. Much more than a simulator, it should be ready in the not-too-distant future.

After Nimitz will be *Catch 23,* a completely three-dimensional adventure which will use line-drawing techniques to view every area you visit. On a lighter note, Martech will be releasing *Cosmic Shock Absorbers,* a spoof on the whole shoot-'em-up syndrome, placing you as a fourth division superhero who has to shoot carrots to survive.

Finally, and in a surprise licensing deal, Martech has announced that for Christmas it has the rights to *Tarzan.* No details of the game are available.

Martech cornucopia



Ask any knowledgeable Commodore 64 games player what was the best karate game and he would probably say it was *International Karate* by System 3. Unfortunately, System 3 never released a version for the Amstrad, finding it much easier to license the name to a new company, Endurance Games.

After a surprisingly short wait, Endurance has released a version of the game and it should keep many budding Bruce Lees happy forever.

Although the graphics are not so colourful as the Commodore version, nor is the music so good, it is still a very playable game and consequently should keep dedicated Amstrad gamers happy for many hours.

there are six backgrounds, including London and the Pyramids and with more than 15 moves, all superbly animated, even *The Way Of The Exploding Fist* by Melbourne House looks a little dated beside it.

The Great Escape

As well as such smashes as *Miami Vice* and *Parallax,* both reviewed in this issue, Ocean has secured three new licensing deals to release during the run-up to Christmas.

The only problem with licences now is that they are tending to become a little diverse and some companies are licensing almost anything, only to produce a game with little if any similarities to the licensed product.

One new and exciting licence for Ocean is *The Great Escape.* Using the storyline of the film, there is vast potential for both an arcade and an adventure.

Another family favourite, *It's A Knockout,* is also to be turned into a game, courtesy of Ocean, but hopefully the game will not contain the nauseating commentary of Stuart Hall.

8-bit Atari – Alive and kicking



Far from being dead, the 8-bit Atari range is alive and kicking, with new software appearing every day. CRL has announced the imminent launch of *Sunstar,* a new space travel game which looks to follow where Elite left off.

As well as CRL, there is Red Rat Software, a new house started by two members of the Atari World team. They are dedicated to producing high-quality software for 8-bit Ataris and eventually for the ST. One of the first titles, *Screaming Wings,* has just been released.

Although most of the products are games, Red Rat has also produced an art package which allows the user to draw with all 256 colours simultaneously, something other packages had failed to achieve. Interested parties should contact Red Rat on 061 834 4941.

New York, New York on BT Gold

The Database Publication Microlink service on Telecom Gold has announced that its subscribers now have the option of linking with a New York database, Mnematics, which, besides offering a direct link to American users on various chatlines and bulletin boards, also opens an electronic mail link to other U.S. databases, including The Source and Compuserve.

The advantage of the Microlink/Mnematics is that individual users do not need their own fairly costly International PSS accounts but the cost is still 25 pence per minute on top of normal Microlink charges, or £15 an hour for heavy users.

Micronet on Prestel has also announced the intention to offer a similar link with Mnematics in the near future. The Micronet version of the gateway link will use the special scrolling text to the Presfel viewdata conversion sytstem which last month we revealed would be the visual interface between Micronet and its gateway to the Shades MUD game.

The Micronet/Mnematics link is expected to cost roughly the same as the Microlink service, though on-line time charges at the U.K. end should be cheaper depending on when the system is used.

The 102 – a dandy Tandy

The much-loved Tandy 100 lap-top portable computer is officially dead but long live its replacement. The 100 was probably the most favourite portable comms terminal, though an external modem was always needed to go on-line. Now, with the new £299 Tandy Model 102, there is no need to carry around extra pieces of equipment as a V21 300-baud auto-dial modem is built-in.

At £299, the 102 is no more expensive than its predecessor and so represents improved value. Down to slightly less than 4lb., the portable is also slimmer but retains the familiar 40-column, eight-line LCD screen display. Also as before, the built-in utility software, scheduler, diary and Basic remain.

The 24K RAM machine, which can be upgraded, is largely as of old but more compact, even with its built-in modem. BABT approval apparently looks unlikely in the foreseeable future.

Prestel for radio hams

The independent area on Prestel set aside for computer club activities, Clubspot 810, recently became a new home for the Radio Society of Great Britain. RSGB members are taking advantage of Prestel facilities to keep in touch via mailbox, and their own area on Clubspot pages will act as a central information service for members, which it is hoped will reduce the RSGB's large amounts of paperwork and mailing costs.

RSGB members do not just talk to each other on air – they exchange computer data – programs and text – over the airways. The dedicated radio ham of the 1980s, it would seem, would not be without a micro to keep tabs on the rather complicated equipment used. RSGB members on-line will also have access to the Micronet database, as do all other Clubspot members.

RGB on Clubspot can be found on Prestel page 81070.

Drinking talk from Tandata

What has comms to do with the pub? Tandata, between hard selling into the educational market, has broken into the brewery market successfully. It is not a Tandata effort at brewing real ale but apparently it has won a contract to supply 1,600 Td1616GT terminals to Whitbread for use in its network of public houses.

Next time you local does not have your favourite brew, the landlord will have no excuses.

Modems for all

Commodore 64/128 owners can claim a free modem if they subscribe to the Compunet database, a Commodore-specific database service. Prospective subscribers must take a year's subscriptiuon – £15 per quarter – to qualify for a free modem, the only other cost being £3.50 postage and packaging.

It follows in the footsteps of Micronet, which launched its free modem offer for mainly BBC and Spectrum owners – other makes of micro, including the 64, may require an extra interface to accompany the give-away modem.

Comms watchers may remember that when Compunet started about two years ago, a year's subscription was given away when a modem was bought. This time the marketing strategists appear to be operating in reverse.



The Psion Organiser.

Pocket communi-cations

Psion Software, maker of the Psion Organiser II pocket computer, claims that 20 percent of its sales are for comms-orientated applications. Launched earlier this year, Organiser II sales have now passed the £1 million barrier with one in five being sold complete with the optional RS232 comms interface.

When we first provided news of the Organiser II we mused that there was no modem small enough to match the natty little pocket computer but with last month's news of the Miracle Systems cigarette packet-sized modem, perhaps Psion and MS should get together.

School discounts

Wooing schools and colleges which have not taken advantage of the recent Government-subsidised Modems for Schools scheme, Tandata is offering several of its products at special educational discounts.

Almost halved in price, the TM512TP modem, as offered in the MFS scheme and used by the Times Network for Schools, is being offered for £135 instead of the normal £255.

The Hayes-compatible version, the TM512, normally £255, is down to £150. Several pricier Tandata modems, along with software packs, are also on special educational discount.



The Thing – A VDU operator's best friend

Incredible but true is the phrase which springs to mind when you talk about the Thingi. The claims made about this pioneering peripheral are nothing short of extraordinary – virtually indestructible, the greatest advance in office efficiency since the paperclip, and improved typing speeds, to name a few.

The Thingi, produced by Overbase Ltd, Wirral, is a twisted plastic strip, complete with a copy clip, which can be attached to the side of a computer monitor and used to support securely anything from a single sheet to a complete magazine for a bulky document. Although the main supporting strip is available only in white, a range of colours is available for the copy clip.

Using the Thingi will increase the space on your desk while you type-in listings and is ideal for supporting maps or instructions while playing games. It fastens securely to the monitor by means of a Velcro strip and holds the copy in the optimum position to avoid eyestrain or neck-ache. It is also available in left- or right-hand versions.

It is often said that the best ideas are the simplest and that is certainly true of the Thingi. Since its launch in March, demand has been great and the company claims that total sales are fast approaching the 50,000 mark. It would seem that few people can really be happy without a Thingi.

Mastertronic move into hardware with the Magnum Joystick

The phrase "Tomorrow's technology today" is over-used but it is valid when used to describe the Magnum joystick, the first piece of computer hardware from the budget software giant Mastertronic.

The design is in no way conventional and the control mechanism is based on the latest electronic microswitch technology to combine sensitivity with a fast response time.

The ergonomic styling, combined with the latest moulding techniques, have prompted the manufacturer to claim that hours of fatigue-free use are ensured with the product. Suitable for left- or right-handed users, the main handgrip features a non-slip, short-travel thumb trigger and a platform in front of it supports the control stick. The Magnum is supplied with an extra long 5ft. cable and is fully-compatible with most popular home computers.

Costing £12.50, it is a little more expensive than other joysticks offering similar facilities. Its unconventional appearance may deter a few prospective buyers but those who dare to break with tradition will find that tomorrow's technology is worth waiting for.



Go to school at home

School Software Ltd is an Irish company which has recently released a range of educational software for Amstrad, BBC and Commodore computers. Several programs are available designed to give a gentle introduction to a subject or to help a student prepare for examinations.

Mapwork, for example, is a geography tuition program for 12-17-year-olds. It displays certain areas of Great Britain and Ireland and asks the user to identify them. The graphics are superb and the program is very challenging yet enjoyable.

The *Physics* tuition program, aimed at the 12-to-16 age group, produces a colourful way of revising for the O level standard examination. Questions on all subjects in the curriculum are available and a running score is displayed on the screen so that you can see how you are faring.

If you should give an incorrect answer you are given a small clue, such as the first letter of the correct answer. If you are incorrect a second time, the correct answer is given. With all the programs in the range, the manufacturer states that the answers used are not the only possible responses – they are merely the best or most commonly-used.

Overall there are 11 programs available from School Software for all ages from three to adult – a good excuse to play with your computer and have fun while revising for your examinations.

All the programs are available on cassette or disc from, School Software Ltd, Meadowvale Estate, Raheen, Limerick, Republic of Ireland. Tel: 353 61 27994.

Two computers are better than one

One of the latest trends in the computer market is the linking of two computers for multiple-player games. In keeping with the fashion, Dinosaur Software has developed *Music-link*. It consists of a control program,

available on disc or cassette, and a cable allowing two BBC micros to be connected via their RS423 ports. Using it doubles the number of sound channels available to budding BBC musicians, allowing them to utilise up to eight voices and then hear them all played back at once via the two machines.

Pulses sent through the connecting cable ensure that the two computers are always synchronised and never out of step, regardless of any differences between their interval clocks.

The controlling program is also sent down the RS423 link, meaning that only one of the machines needs to load the program. Music-link is designed as a utility for the Dinosaur Software Musicpen processor which can be used on one of the computers to create and edit music files for playback.

Music-link costs £9. A ready-made connecting cable is available for an additional £3.50, although the instruction booklet includes details of how to save money by making your own. The Musicpen chip costs £28.75 and both are available direct from the manufacturer, Dinosaur Software, 41 Cheney Way, Chesterton, Cambridge CB4 1UE. Tel: 0223 322244.

The Opus Challenger 3 – A wolf in rams clothing

Even though the boffins at Opus ha·e been kept busy producing the PCII machine, a low-cost PC compatible, some have managed to find the time to produce Challenger 3, the latest addition to the company's many add-on disc drives for the BBC machine.

Challenger 3 is a double-sided, 40/80-track disc drive with an integral solid state RAM disc capable of performing several times faster than a conventional drive. Challenger 3 gives up to 1.2 MB of usable capacity. The system provides the perfect answer to the problems of processing long documents when using the BBC as a word processor.

Normally, the disc would have to be accessed at various intervals, a time-consuming process but, using Challenger 3, up to 512K can be stored in the RAM disc of the drive, allowing you to edit that much faster before saving the finished product to disc. Even when that is done, a back-up is still maintained on the machine RAM. Costing £250, Challenger 3 can give all the benefits of a two-disc-drive machine for considerably less than the normal expenditure.

The joystick Joyce – more than a games machine for less than most typewriters

When it was launched, the Amstrad PCW computer was billed as more than a word processor for less than the price of most typewriters. It is only now, more than a year later, that software companies are beginning to realise how much more than a word processor the machine is. Several games have been converted to the PCW and many more are expected in the near future. All those available are keyboard-controlled but that minor limitation may soon be a thing of the past.

Kempston Micro Electronics Ltd is soon to release a joystick and interface for the PCW range. The interface plugs on to the expansion port at the back of the machine and incorporates a standard 9-pin connector, allowing almost a standard joystick to be used.

The interface alone costs £14.95 inc. VAT and a package which includes a high-quality, arcade-style joystick is also available for £29.95.

Batman and *Fairlight* are two of the games being re-programmed for joystick control but many more are expected to follow as the full potential fo the PCW machine is recognised.

Applying technology for a sporting chance in the PC market

The long-awaited Amstrad PC was launched finally at the PCW Show and the company is now expected to take the major share of the low-cost PC market. That, however, has not prevented many other companies making inexpensive clones in an attempt to share in the expected Amstrad success.

Applied Microsystems Technology Ltd is one such company. At the PCW Show in the shadow of the Amstrad stand, it launched the PC Sport, a low-cost, truly portable PC clone. Although the appearance is deceptive, looking very much like a standard home computer, it is a fully compatible machine built to a high specification.

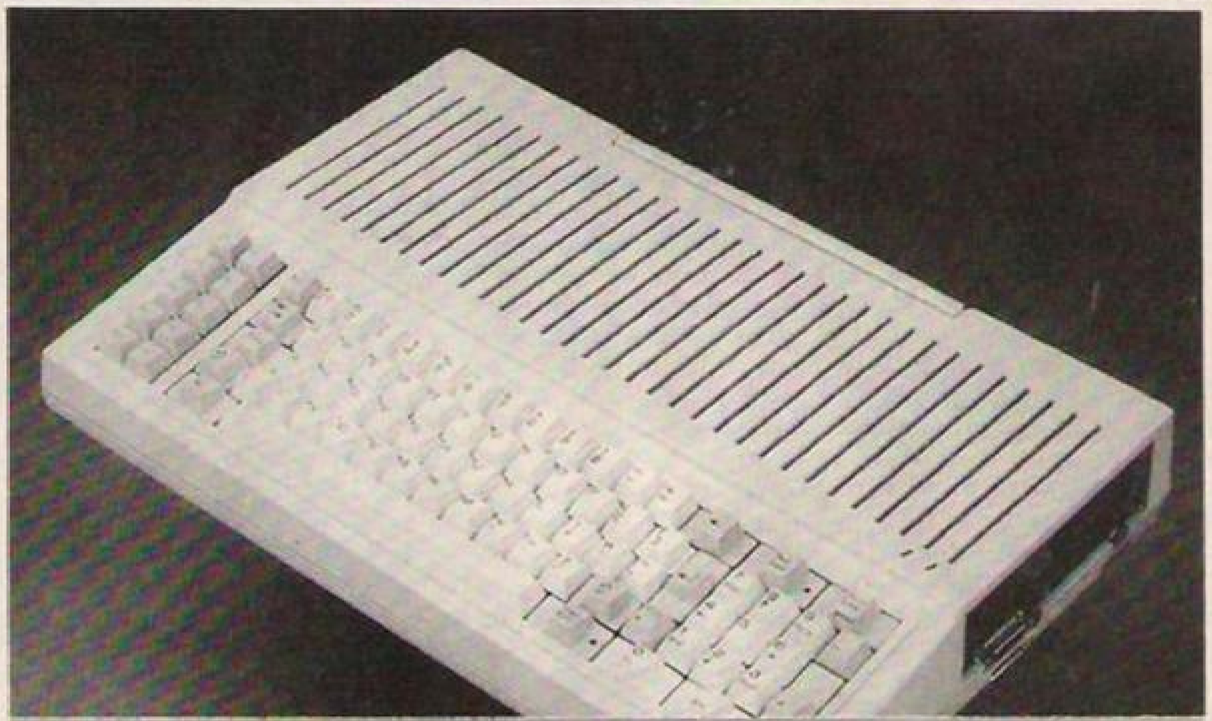
The standard features include 256K memory,



expandable to 640K on the motherboard; an integral 360K floppy disc drive with an internal controller for a second already built-in; a graphics card, serial and parallel interface are all supplied as standard, making the PC Sport a very versatile machine.

A carrying handle at the rear of the main unit makes moving the machine far easier than some of the other claimed portables on the market. An optional modulator eliminates the need to carry around a monitor as the machine can be plugged into any television set.

With all PC clones, a major consideration is the cost of upgrading. With the PC Sport, it is surprisingly cheap; the standard configuration is £399, while the machine with a monitor, second drive and 640K costs £665.



From Cambridge – A solution to the problems of connection



Cambridge-based Tyepro Ltd offers an unusual service which will be music to the ears of many a frustrated computer owner. The company specialises in solving the connection problems which can arise between different types and combinations of printers and computers. Ian Tyes, the technical director, says:

"People are often annoyed to find that their newly bought printer will not connect to an existing computer or that combinations of computers and printers cannot be linked. We will try to solve any connection problem a customer brings to us. To improve the point, he has a telephone hot-line service to answer connection difficulties.

Tyepro will customise its standard products to suit a particular need, even for single item orders. Cables of virtually any length can be provided and designed to connect almost any combination of machines. A converter will solve the serial-to-parallel problem and a data switch allows more than one printer to be attached to a computer and vice versa, all supplied complete with output cables where applicable. Tyepro also makes a converter and data switch combined which will allow mixing and matching.

For further details, contact Tyepro Ltd at 30 Campkin Road, Cambridge CB4 2NG. The hot-line number is 0223 322394.

Oops!!

The guide to modem suppliers in the August issue of *Your Computer* contained an error. The company names as Jansz Computer Communications will be launched in the near future under the name RCR. It will be distributing a wide range of modems for most home and business computers. The company address will be 471a Hornsey Road, London N19 3QL. Tel: 01 281 4777.

A sophisticated

Tony Sacks reports on two new products from Datel Electronics. If you want to sound like a Dalek, echo your voice or produce realistic drum sounds on a Commodore – read on.

The Commodore 64/128 is becoming a noisy beast. In the last two years more than a score of software and hardware offerings have emerged, all designed to give the micro a musical voice. At the most basic level there are programs which coax the SID chip to sing but the aurally more impressive packages hook pieces of hardware on to the Commodore to set it free of SID limitations.

So, via a Midi interface, the 64/128 can be used to control external musical synthesisers, while plugging-in the Commodore Sound Expander effectively converts it into a synthesiser. Perhaps most fun are the packages which turn the Commodore into a digital sound recorder, using its memory to store sounds. They are in two varieties – samplers, which both store and play back sounds; and drum machines, which use simpler circuitry to re-create pre-recorded percussive noises.

Datel Electronics has two packages which offer both those possibilities and permit some swapping between the roles of sampler and drum machine.

Datel produced one of the first samplers for a home micro – the Spectrum – several years ago. It was rather crude, both in hardware and software terms, and has since been upgraded.

Sophisticated

The Commodore sampler is a far more sophisticated system than the original Spectrum device. The hardware is contained in a package, half the size of a paperback book, which snuggles into the micro user port. Sounds are fed into it either via a microphone – supplied with the sampler – or by plugging-in a lead from a musical instrument or hi-fi. The sampled sounds are played back later either via a television loudspeaker or, much more impressively, through a hi-fi system.

So, once you have plugged-in everything, what can you do with the sampler? A main menu presents you with eight options and some of them produce sub-menus. The simplest option is to record a sound. If you choose that, the screen goes blank, waiting for you to provide a sound via the microphone or line input. When it senses a strong enough input, it starts to record, stopping when it runs out of memory a few seconds later. Press option 2 – playback – and your solid-state recording blasts back at you.

You can alter the sampling rate, called confusingly the loop rate, to give you short, high-quality recordings or longer, lower-quality versions. An interesting option allows you to store two sounds simultaneously by recording one on top of another. You can use that to create a two-note chord.

Another option, the sequencer, turns the QWERTY keyboard into a piano-type keyboard on which you can play tunes with your sample. Keys in the top two rows of the keyboard form one octave while keys in the bottom rows form a lower octave. As you play, the tune



is stored in the micro memory, along with the sample, and subsequently can be played back as if it had been taped-recorded. If you are particularly pleased with your effort, you can dump it on to tape or disc.

This sub-menu also allows you to tinker with the sampled sound. The sample memory is divided arbitrarily into eight blocks which can be swapped around to provide curious variations on the original sound. You can also choose to chop blocks from either the end of the sample to eliminate unwanted noises or blank sections.

This sample editing procedure is more crude than that offered by other samplers such as the Commodore system or the considerably more expensive Supersoft Microvox sampler. The packages produce oscilloscope-like displays of the whole sample, making the editing process far easier and more precise. Datel is, however, planning to release improved software which would offer that type of editing function.

Another option, live effects, little imagination – a good deal, in fact – you can persuade produce a choice of reverberation, echoes, or a gimmicky Dalek voice. By twiddling a knob on the back of the sampler module, you can affect the depth of the reverberation or the echo. Both affect the depth of the reverberation or the echo. Both effects seem to work better with the microphone than with line inputs. With a little imagination – a good deal, in fact – you can persuade yourself you are in a vast echoing cavern or centre-stage in the Royal Albert Hall.

The drum machine, called ComDrum, looks similar to the sampler. It does not have the microphone or line sockets but provides a trigger out socket for synchronising with external instruments.

As with other micro-based drum machines on the market – the Cheetah SpecDrum and

d sound sampler



Amdrum and the Tron Digidrum – the ComDrum holds a kit of eight percussive sounds simultaneously in the micro memory. They are read out of memory by the controlling software at suitably-staggered intervals to give the impression of a drum kit being played.

The ComDrum is supplied with three kits of eight sounds but some instruments appear in more than one kit. A little more variety would have been welcome. The short, middle-frequency sounds such as tom-toms, claps and cowbells are most successful. The longer and extreme frequency sounds, such as the bass drums and cymbals, are less convincing.

One option is to use QWERTY keys 1 to 8 to play the sounds live. Alternatively, those keys can be used to record a pattern of up to 32 beats in 4/4 time or 24 beats in 3/4 time – unfortunately the only two time signatures offered. The recording can be either in real-time – guided by an irritating metronome pulse – or step time, in which case the instruments are placed on a time-versus-instrument grid using the cursor controls. The results of both types of recording can be edited subsequently to move, remove or add instruments.

Up to eight patterns can be held simultaneously and strung together in any order to form a song. The completed song can be saved to tape or disc.

At present the instruments in the ComDrum kits cannot be swapped around but Datel is planning to issue an editor package which will allow sounds to be mixed and matched to create tailor-made drum kits. This £5.99 package will include 16 more instruments.

Another add-on will be a £24.99 Midi interface to plug into the 64 cartridge port. It will link the sampler and ComDrum packages to other electronic instruments. It is particularly good news for owners of the Firebird Advanced Music System which supports Midi but, until now, has worked only with interfaces costing around £100.

So to prices. The Datel sampler package costs £44.99, while the ComDrum retails at £29.99. The ComDrum software will run on the sampler hardware, not vice versa, so Datel is also supplying the drum software separately for £9.99.

Rivals

Although the packages offer good value they face stiff competition. On the sampler front there is the Commodore system which will soon be joined by a low-cost package from Supersoft – a slimmed-down version of its professional Microvox sampler. Supersoft is also offering a rival for the ComDrum with its £39.95 Rhythm King, while the well-established Dutch product, the Tron Digidrum, available in Britain from Syndromic Music, has already reached a Mark III version and is backed by dozens of high-quality sounds.

Each of the packages has its *strengths and weaknesses.* If possible, you should try to use and listen to each of the rivals before choosing.

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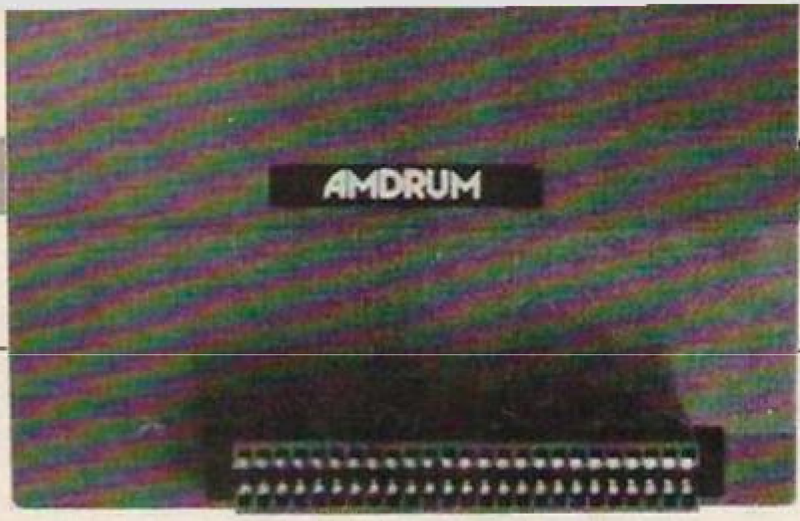
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Boom Boom on the Amstrad

Can the Amdrum be beaten? Tony Sacks finds out.

The Amstrad Clan of computers has been ignored by producers of musical add-ons and software. While music-making packages have flourished for the Commodore 64/128, the BBC and even the Spectrum, Amstrad machines have had to wait mutely on the sidelines.

The lack of attention is difficult to understand. In many ways the Amstrad is the perfect music-making micro, especially for the computer-illiterate musician for whom the low-cost, plug-it-in-and-run design is ideal.

Now, at last, there are signs that some software and hardware producers are realising it. In the last few months a clutch of packages designed to make the Amstrad sing and dance has arrived. As with much Amstrad software, the packages are mainly hand-me-downs, converted from versions of other machines, but they are nonetheless welcome.

New standards

Rainbird, for example, has converted *The Music System*, the package which set new standards for music-making on the BBC and Commodore machines. TMS puts the Amstrad built-in sound chip through its musical paces. Two other new arrivals are designed to link the computer through Midi, the musical instrument digital interface, to external electronic music instruments such as synthesisers and drum machines.

The first of those packages is another conversion from Midi specialist EMR while the second is a Midi hardware and software package purpose-designed for the Amstrad by DHCP Electronics. We plan to look more closely at this package, which will offer several software options, in a later issue.

The Midi packages will allow you to link your computer to a variety of electronic rhythm machines. Those dedicated drum machines can produce startlingly life-like replications of drum sounds but, although prices have fallen dramatically in recent years, you must expect to pay at least £200 for the pleasure.

There is now a far cheaper way to produce realistic rhythms with the Amstrad, the Cheetah Marketing £34.95 *Amdrum*. It, too, is a conversion from the company's *SpecDrum* and if you have heard one of the 18,000 SpecDrums in circulation, you will probably have ordered your Amdrum already.

If you have not heard a SpecDrum, an exciting aural experience awaits you. Forget the wishy-washy noises usually generated by the Amstrad sound chip; the Amdrum produces real sounds. It turns the computer memory into a solid-state tape recorder capable of storing eight recordings of percussive sounds simultaneously. The sounds are read out of memory at staggered intervals to produce stunningly realistic drum sounds. it is like sitting in a room with a drummer.

The Amdrum consists of a hardware interface which plugs into the computer expansion port with software on cassette. The interface converts the digitally-recorded sounds stored in the micro memory into analogue signals which are then fed through an audio cable to a hi-fi amplifier. No sound is produced by the built-in computer speaker. That is a mixed blessing because, although the tiny Amstrad speaker would scarcely do justice to the Amdrum sounds, it means that you must have an amplifier near your computer.

The software consists of a main control program, a kit of digitally-encoded drum sounds, and a set of songs which demonstrate how the sounds can be combined to produce driving rhythms. A utility for booting the sounds to disc is also provided.

The control software presents itself as four pages, one of which has three sub-pages. A menu-driven main page acts as the nerve centre from which all other operations start and to which they usually return. Among other actions, that page allows you to set tempos – in beats per minute – to name, copy and delete songs, and to switch a syncro function on or off.

Stays in time

This useful device synchronises the Amdrum with a multi-track tape recorder connected via the tape socket. One track of the tape recorder is used to record pulses which govern the speed of the Amdrum so that it stays in time with instruments or voices recorded on the other tracks.

The Pattern page is where the percussive sounds are assembled into rhythmic patterns. The eight sounds in the kit with the Amdrum are a bass and snare drum, a pair of tom-toms, a cowbell, an open and closed hi-hat (cymbal) and claps. They are divided into three groups, from each of which only one sound can be played at a time. That is not so much of a limitation as it appears at first.

There are two ways of forming the sounds into patterns. First, they can be entered on a time-versus-instrument grid which defines when each sound is heard. That allows rhythms to be defined precisely. The alternative method is to tap out the rhythms on the computer keyboard, a more natural approach which will suit people with a good sense of rhythm but which is less precise than the grid technique.

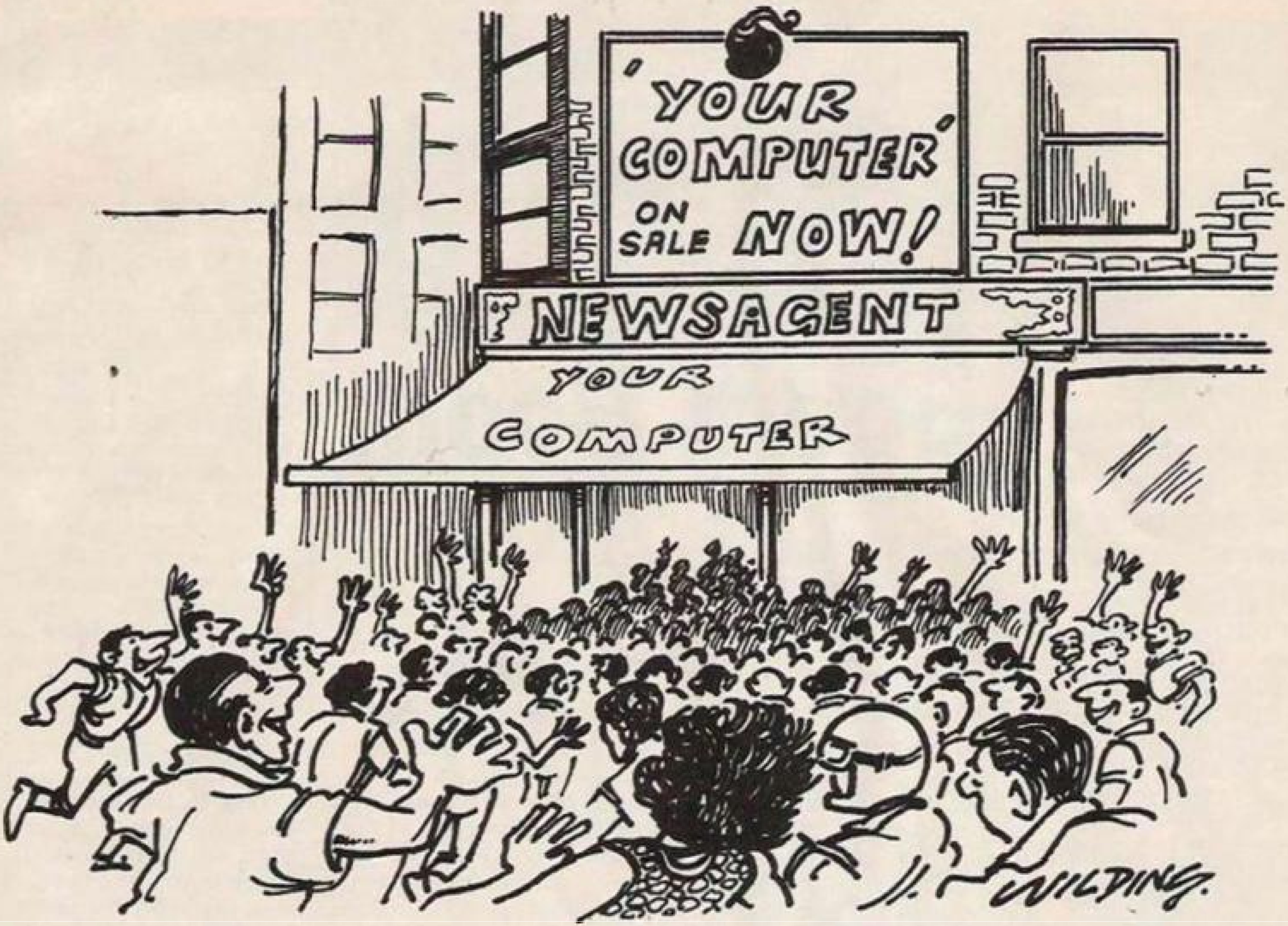
Any complexity

Patterns are defined in two-bar lengths. To form a song, several patterns are strung together on the Edit Song page. In any one song up to 64 patterns can be used. By varying the order in which they appear and the number of times they are repeated, songs of almost any complexity can be constructed.

The fourth page, Load/Save, does just what you would expect. Songs can be stored and retrieved from disc or tape, individually or in groups. This page will also be used to load different kits of drum sounds when Cheetah makes them available. The company has already produced some interesting variants for the SpecDrum, including collections of Latin and electronic percussion sounds, and similar kits should soon be available for the Amdrum at £3.99 and £4.99 respectively.

Cheetah is planning other musical offerings for the Amstrad machines, including a sampler which will allow you to digitise your own sounds, and a Midi interface and software. If the Amdrum had such an interface built-in, it would make it even more attractive, especially for serious musicians, but would probably add considerably to its cost.

Even without a Midi port, the Amdrum should give hours of pleasure. It will impress your friends and probably annoy your neighbours – they will want one, too.



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More from your printer

Many people fail to fully utilise the peripherals they purchase. In this, the first part of a new series, we show you how.

As computer users begin to aspire towards upgrading their systems, it soon becomes apparent that a printer is one of, if not the most important, asset. In the last five years, dot matrix printers have become the most popular for a variety of reasons. Priced as they are at anything from £100 upwards, they offer flexibility of print styles, speed and graphics.

Even so, only a very small percentage of dot matrix printer owners even go close to using all the facilities offered. Without doubt, the main reason is the incomprehensibility of most manuals provided with printers. Generally, as well as being badly written, the examples are only in Microsoft Basic which, although accepted as a standard, is not used by any of the four top-selling computers in the U.K. – the Spectrum, BBC, Amstrad and Commodore 64.

Epson

Experienced users of dot matrix printers will be familiar with the one word which lets the user dictate the actions of the printer – control codes. With the exception of dedicated printers, those designed to produce specific characters from specific computers, most printers use the control codes which were first used on the Epson range of printers.

To make printers such as the Epson range compatible with a wide variety of computers, it seemed sensible to use the same codes to send text to the printer as were being used to send characters to the printer. The basis for that coding is ASCII – the American Standard Code for Information Interchange.

Apart from Commodore, which decided to use its own internal coding system, almost all computer manufacturers based their coding systems on ASCII. As well as codes to produce text on the printer, there are also codes to give the printer dedicated instructions. Known as control codes, they are necessary to produce such results as a forced carriage return and line feed.

Communication between computers and printers takes place by means of an eight-bit binary data transmission link. This link means that there are 256 possible codes, anywhere from 0 to 255, which can be transmitted. Although that is generally accepted as the norm, there are computers such as the Amstrad range which use a seven-bit printer port, meaning it can send codes only from 0 to 127. Examination of any keyboard, however, will show that leaves about 20 codes for control characters.

One of the most common problems when starting to use an Epson-compatible printer is caused by control code 32 – 20 in hexadecimal. Used to cope with the differences in monetary symbols, it is usually adjusted by a series of DIP switches, although it can also be done in software.

To control a printer from Basic, usually it is necessary to use the CHR$(N) function, where N is the code to be sent. Most standard Basics use commands such as LPRINT and LLIST, which act in the same way as an ordinary LIST or PRINT, except that the output is directed towards the printer rather than the screen. To send a line feed you would type:

```
LPRINT CHR$(10)
```

To send more than one code at once, they can either be separated by a semicolon, or by using the plus sign:

```
LPRINT CHR$(10);CHR$(13)
or
LPRINT CHR$ CHR$(10)+
CHR$(13)
```

Some computers, such as the Sinclair QL, do not have LLIST or LPRINT commands and therefore you need to open a channel to the particular device; thereafter all output will be directed through that channel.

Escape sequences

Creating special effects on a printer requires comprehensive knowledge of escape codes. An escape code on its own does nothing and only when the character which follows is a control code is the printer forced to react.

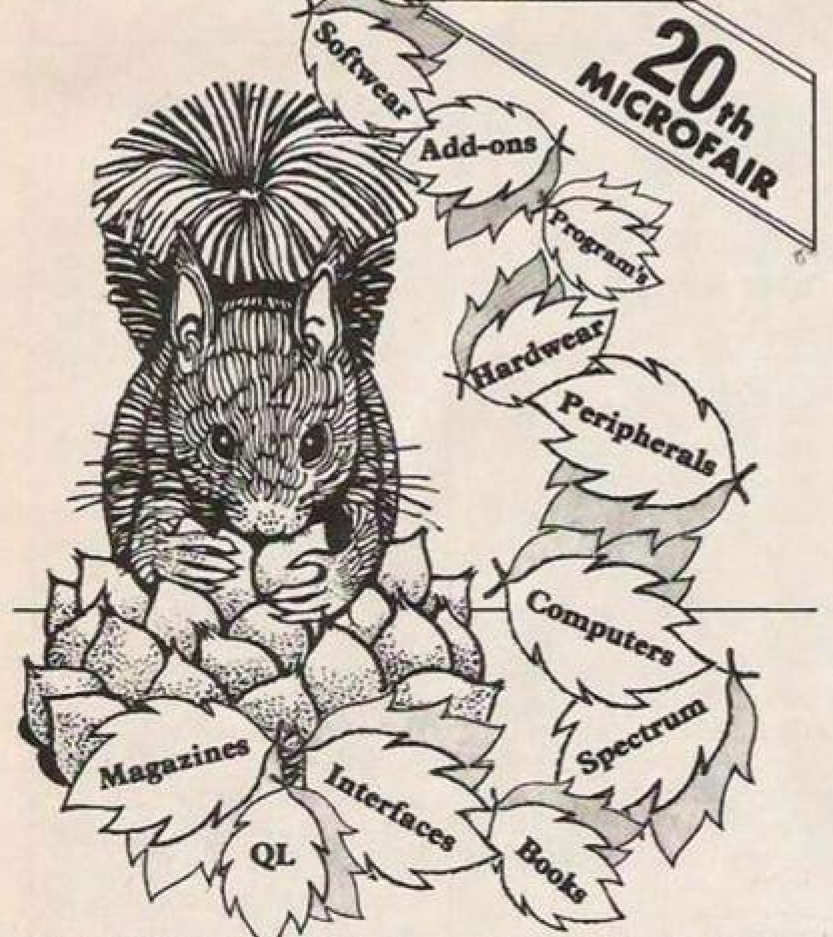
To set certain functions on printers, it is necessary to send a string of escape codes, first selecting the option and then giving certain values. In some cases, the user must determine the length of the control string and that is done by sending a NULL character – CHR$(0).

• *Getting The Most From Your Printer* is written by R. J. Penfold and published by Bernard Babani. Costing £2.95, it is order number BP181. Bernard Babani can be contacted at The Grampians, Shepherds Bush Road, London W6 7NF.

CONTROL CODES

Code 0 – This is the null code. It is ignored by the printer.
Codes 1 – 6 – At present these codes are not used.
Code 7 – This causes a bell, buzzer or beeper to sound in the printer.
Code 8 – Causes the printer to backspace by one character.
Code 9 – When this code is received, the print head moves to the next horizontal tabulation position.
Code 10 – This causes the paper to be fed by one line.
Code 11 – The print head moves to the next pre-set vertical tabulation setting on receipt of this code.
Code 12 – Regardless of the position of the paper in the printer, this code will cause it to be fed one complete page length.
Code 13 – This is the carriage return code.
Code 14 – Used in combination with other codes, this will produce double width characters. Used on its own, the enlarged characters will automatically cancel at the end of each line.
Code 15 – This code produces characters in condensed mode – approximately 17 characters per inch on most printers.
Code 16 – Deletes the last character sent to the printer from the print buffer.
Code 17 – Is used to activate the printer, enabling it to receive and print data. It is only valid when used to counteract code 19.
Code 18 – Cancels the condensed mode setting.
Code 19 – Disables the printer.
Code 20 – Cancels the enlarged mode setting.
Codes 21-23 – These codes are not presently in use.
Code 24 – Cancels the current line sent to the printer but not yet printed.
Codes 25-26 – These codes are not used.
Code 27 – This is the escape code. By itself it does nothing but it causes the code following it to be treated as a control code, even if it is normally a character code. This is the basis of all printer control.
The remaining codes from 28 to 127 are used to produce keyboard characters and full details can be found in your printer manual.

You'll be nuts to miss this show



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Arcade games creator

Anthony Thompson reviews a software utility from Argus which allows Spectrum owners to create the games of their dreams.

Even though there are more than 5,000 commercial software packages available for the Spectrum computer, there is nothing so satisfying as creating your own. Writing a machine code shoot-'em-up or platform game, while greatly rewarding, is often a frustrating and dull affair.

Using *Arcade Creator*, even the novice programmer is able to produce full-length machine code games to professional qualification with up to 40 screens. The time taken to produce a finished game, complete with backgrounds, animated sprites and interactive sound can be as little as an hour.

Arcade Creator is supplied on two tapes. Loading side one of the first produces the opening menu. Choosing option 1, the user-defined graphics designer allows you to create the screen scene on which the game will take place. Using the cursor keys or a joystick, you can create your shape and then rotate, invert or produce a mirror image of it before saving it in the program files. Arcade Creator is complete with its own files of sprites and UDGs and they can be used in preference to your own designs.

The sprite designer has little to distinguish it from the others on the market. It enables you either to produce your own designs or select from the 30 or so retained on file. Once you have drawn four images of your character, the program switches between them to show you how it will look when animated.

The sound designer is self-explanatory and can be used to create background noises while the game is in progress. The final option on this side of the cassette is the screen designer which allows you to select which UDGs are to be used and choose which background colour will appear in the finished game.

The second tape is concerned with the structure of the game. Two types are available, chase-'n-shoot or platform. Both types have set patterns to follow, making the creation process less complicated. For chase-'n-shoot games, the players fire missiles at the aliens while attempting to avoid barriers and obstacles and collecting as much treasure as possible.

In the platform games, the player can avoid the aliens and killer monsters only while collecting the treasure. Although those formats may seen to restrict the game play, even the most exciting professional games are based on similar principles.

After you have chosen the sprites for the aliens, missiles and other items you can select which, if any, sounds are to be produced when a missile is fired, treasure collected or an alien is killed. Finishing touches such as a loading screen and title tune are added using the second side of the tape, which is also used to prepare the final game tape.

Overall, Arcade Creator is a quality, low-cost product which can produce enjoyable games in a short time. As the packaging indicates, the only limit is your imagination.



Ian Duerden looks at the latest package from the Ocean/Oasis label.

Super software

Following the launch of *Laser Basic* Laser Compiler, Laser Genius is the third in the series of utility packages from OceanIQ/Oasis. Laser Genius is a full package for machine code development and includes an Editor, Assembler, Monitor and a new concept in programs of this type, an Analyser.

The package arrives in the Ocean standard big box containing cassettes or disc and a fairly comprehensive 150-page manual. Many of the commands and facilities are standard and can be found on most other Assembler/Disassembler packages but it is all the extra commands and services not found on other utilities which make Laser Genius an out-and-out winner.

A Basic loader provides the option of changing colours or altering line feed characters before loading the three programs comprising the Assembly part of the package – the assembler, the toolkit and the hash (#) extension. The toolkit contains most of the commands needed to use the assembler; the hash extension contains a number of psuedo-operations, with the '#' character printed in front, their purpose being to provide an integer-based compiled language called Phoenix.

Using this language it is possible to produce programs to test ideas or algorithms before compiling them to machine code without losing speed or program size. Phoenix can be mixed with machine code or used as a stand-alone program, so if you have difficulty using or learning assembly code it is possible to write your programs using it.

Because Phoenix is a fully-structured language it is relatively complex and will take a fair amount of time to learn. The commands available are numerous but well-documented and the manual contains a number of examples written in Basic, machine code and Phoenix for you to study and use.

The Editor contained in the Assembler is a hybrid of the best of the editors on the market, mixing line and screen editing functions in one program.

Each source code must have a line number – not unusual – but where Laser Genius again differs is that it checks the syntax of each line as it is entered, making for extremely fast assembling of source code. The line numbers are arbitrary as you can input source code in paragraphs, enabling you to structure your programs much more easily. Where errors occur a message will appear on the screen explaining the type of error; you can then use the cursor keys to make corrections.

It is possible to assemble code in a variety of ways – stand-alone, linked with a previously-assembled program, or to assemble selected subroutines from a library; each can be displayed on the screen or dumped to a printer, or both, but you do lose assembler speed with those two options.

First impressions of the Monitor are similar to those of the Assembler. It is typical of others already on the market and anyone who has stayed up half the night single-stepping through a program in an attempt to find a bug will know what I mean but again Ocean have a new idea, an Analyser.

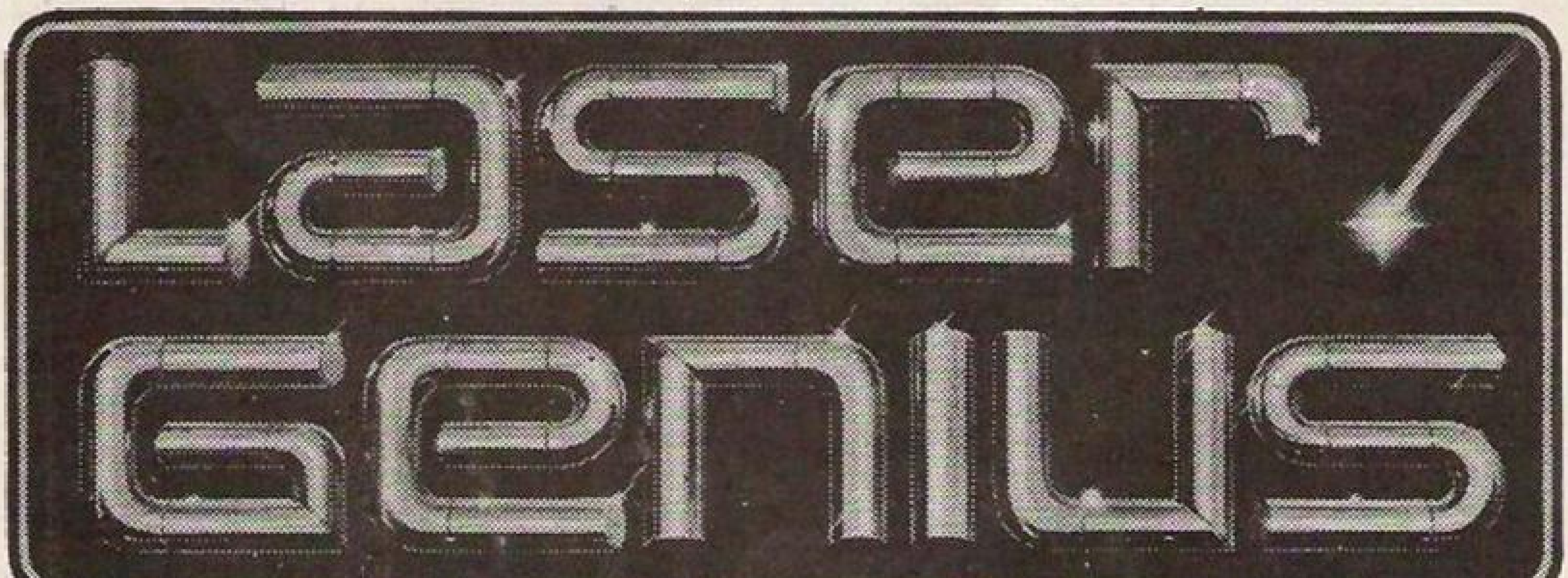
It allows up to 10 selective 'stop' conditions to be defined. With the stop condition set you can run your programs normally; the analyser then traces each step of the program automnatically. If you wish to find a particular value for a particular register before it writes to the screen the analyser will trace the program to that point and then list all the values on to the screen for you to examine. That can save hours or even days in tracking elusive bugs which tend to perpetrate many machine code programs.

The Analyser uses a dialect of Forth as the controlling language. First, it executes much faster than Basic and, second, it is compact and relatively easy to learn. Anyone with some knowledge of Forth should be able to find their way around reasonably quickly; others who have not used the language will be able to glean sufficient information from the manual to be able to master the analyser in a short time.

The manual contains a fair amount of information. It is not perfect by any means but explains the workings of both programs reasonably well. If there is a criticism it is that the section on Phoenix could have been more explicit. Apart from that it allows you to experiment as you proceed.

The package is suitable for the inexperienced user, who will not need to upgrade to something better, and the experienced programmer who needs more than most other packages can offer.

Laser Genius must be the best value package on the market in terms of price and what it has to offer. Where else could you find such a time-saving, debugging tool plus a new language and compiler all in one Assembler/Disassembler package?





Adventureline

Hello, all you adventurers, would-be adventurers, demi-wizards, and wizards and welcome to Adventureline. One thing I have noticed in the last year is the tremendous growth in the adventure market. More and more people seem to be turning to this form of computer entertainment and because of the nature of an adventure we are now beginning to see what can only be described as a cottage industry of adventure clubs springing up all over the place.

That is satisfactory for the dedicated adventurer and also for novices who invariably become confused and need a gentle push in the proper direction now and again. It seems to me that if there is a shortage of adventures in a particular month, the clubs are written about and not always in a complimentary manner.

My feeling about these small organisations is that they should be encouraged as much as possible. Anybody who spends spare time helping other enthusiasts to enjoy their chosen hobby is satisfying to me.

Sound advice

What is puzzling is that reviewers of the clubs seem to talk only about whether the club produces a magazine and then review the magazine as if it were an adventure game. I would have thought that the publication is only one part of a club, there to inform members about new games and to give hints, not, as it would appear, the be all and end all of the individual club.

My advice to anyone who intends to join an adventurers' club is first to find what level of help is obtainable, whether or not a good telephone helpline/s is readily available and, after satisfying yourself on those points, buy a copy of the club magazine.

Most clubs produce some form of magazine ranging in price from 50 pence to £1 and it matters not one iota if the punctuation is not exact, or if the pages are not properly formatted. The main thing is the help which the magazines contain. There are many clubs and I do not think you can define which is the best. All are good in their own right and so long as they give adventurers valuable help they should be supported in any way they can – not dissected and compared. The decision, after all, is for the adventurer and, as most genuine clubs will send information, they should be allowed to make up their own minds about the one they feel is correct for them.

If you run a club, send me information and I will make sure other adventurers will be informed.

Readers' Forum

As this is only the second Adventureline column, I did not expect many letters and I was proved correct but, I am looking forward to reading your letters.

Infocom Corner

Some more amusing input for you to try. Jackie Wright of Ashton-under-Lyne writes: "In *Zork I*, type "Say Plugh" and see what happens. Alan Davis of Stockport was delighted when in *Enchanter* he used the 'Zifmia' spell to "Zifmia Creators".

In *Zork II* try asking the robot to read or eat the cakes.

If you are confused by an Infocom adventure, fear not; help is only a telephone call away.

Geoff Rens has joined the Helpline team. He is an expert on Infocom and has a vast knowledge of most popular games.

The helpline is open five days aweek from 1900 to 2100 hours. The numbers are Jackie,. 061-339-0092; Geoff,.0695-73141.

Adventure News

Watch for a new release from the CRL group called *Dracula*. I know there have been countless adventures written using the Count as the villain of the piece but this version, written by Rod Pike, author of the excellent *Pilgrim*, is based on the Bram Stoker novel.

Incentive has informed me that because of the extra work involved in converting *Graphic Adventure Creator* to most popular micros, *Axe*, based on the Frank Oliver sci-fi book, and *The Ket Trilogy* have had to take something of a back seat but production of those adventures is now going ahead full steam.

In axe you play the part of a fantasy warrior out to save the world, to be released initially on the Spectrum with conversions at a later date. Ket, first seen on the Spectrum, will be released on the CBM64 and will contain a new auto-mapping feature – ideal for anyone who does not like mapping.

Time of the End author Keither Milner promises a sequel called *The Bottomless Pit*, released in two parts. Part 1, *The Minister for Alien Affairs*, is set for September. Part 2, *Into the Abyss*, follows in October. If those new games are half as good as Time we are in for a treat.

St Brides is also set to frustrate us again, this time with a three-foot rabbit as the hero. Titled *Bugsy*, we should be seeing it soon.

Adventureline Hints

QUESTPROBE 111

Tarpit posing a problem, in the form of Torch, Get Candle, Give the Candle to Thing, Change to Thing, Hold Breath Time your moves first, though; wait until Thing sinks; wait for 15 moves then Feel Around.

REBEL PLANET

To enter Airlock examine Limcom, press IH Button. To get through Customs, pay your taxes. In the jail make sure you have the wrench. Give the Angry Arcadians your ticket to impress them.

THE SNOW QUEEN

To leave granny's house, get shoes, get doll, wash, kiss granny.

To get past the Rough Girls give doll.

On the Boat throw shoes.

THE PRICE OF MAGIK

Examine Knucklebone

Feldspar Lens – break curtains with knife.

Give robes to Golem.

Throw salt at slug.

DRACULA

- ► *CBM64/Spectrum 48K/Amstrad CPC*
- ● *CRL Group*
- ● *Text Adventure*
- ● *£7.95 Cass £12.95 Disc*

Ever since Bram Stoker wrote her immortal tale about *Dracula,* countless people have sat glued either to a cinema screen or at home in front of a television set and watched the gory tale unfold. Scott Adams was one of the first programmers to use the idea for a computer adventure. Named *The Count,* it was the first step into gothic horror. Since then the infamous Count has appeared in many disguises in many adventures.

It was only a matter of time before a game based on Stoker's novel would be produced. The problem, I think, was getting the proper person to convey to a micro adventure Stoker's ghastly story. It needed a word-painter of the highest calibre and who better than the author of the superb *Pilgrim,* Rod Pike.

From the opening paragraphs you know this adventure is special. There are not many authors in the adventure world who can write the way this man does. The scene is set immediately when, on loading, you are presented by a chilling picture of the evil Count's shadow slowly climbing the stairs. Written in the first person, you play the part of Jonathan Harker.

After receiving a request from Count Dracula regarding the purchase of some property you travel to the Count's home in far-off Carpathia. Pike begins to set the mood from the outset with his skilful manipulation of the English language and the crafty way he creates the problems for

GRAPHICS
None
ATMOSPHERE
● ● ● ●
PLAYABILITY
● ● ● ●
VALUE FOR MONEY
● ● ● ● ●
OVERALL
● ● ● ● ●

you to overcome, but they are purely logical and that adds immensely to the playability of the game.

There are no graphics apart from the loading screen but no amount of graphics could impart the sinister atmosphere which Pike's words conjure for you. One example of the type of description you can look forward to is after reaching the hotel and eating a meal you decide to retire for the night and it is while you are asleep that a nightmare unfolds before you. To put some of it into Pike's words: "It towers above me. I smell its putrid breath – so close. Burning red eyes sear into the very inner being of my mind. A scream destroys my mental focus – my brain cannot cope". That continues for sometimes up to two screens – marvellous stuff.

The clever and sometimes frustrating way Pike creates problems is shown in the nightmare scene. If you do not do certain actions there are three possible conclusions, so it is very important to take notice of everything you read on-screen.

With the imminent release of Dracula, CRL and Pike have proved once again that graphics add nothing to a well-constructed text-only adventure and I feel certain that Pike is destined to become a cult figure in the adventure world. As a final word all I can say is "More please – soon".

TIME OF THE END

- ► *CBM64/Spectrum 48K*
- ● *Mandarin Adventures*
- ● *Text Adventure*
- ● *£27.99*

When that excellent adventure-writing utility *The Quill* first appeared it seemed that adventure players would never be short of games to play. It added a new dimension to the adventure world. Overnight hundreds of enthusiastic would-be authors seemed to spring from the woodwork. Unfortunately many of the games were rubbish but that in no-way deterred people from trying. I am pleased to say that among the plethora of 'quilled' adventures there were and are some terrific games.

One of the more interesting and enjoyable is from Mandarin Adventures. Under the auspices of Keith Milner, a true adventure purist, it released *Time of the End* for the Spectrum. Now CBM64 users can enjoy this adventure – and not before time.

Once again it is time to take up the gauntlet and save the world from those proverbial aliens who seem to take great pleasure in upsetting poor unfortunate mortals. This time the aliens are interferring with the earth's weather; giant tidal waves are washing away cities, earthquakes are devastating whole areas which, in turn, is creating utter chaos for all. We were warned many years ago by a rebel alien called Kilroy, who came to the earth and left messages on walls in what he thought were public meeting-places, but as we all know who listens to anybody called Kilroy, I suppose Kilroy's mother would.

It happens that one day while out taking

GRAPHICS
None
ATMOSPHERE
● ● ● ●
PLAYABILITY
● ● ● ● ●
VALUE FOR MONEY
● ● ●
OVERALL
● ● ● ●

the air you are transported suddenly to the aliens' planet and learn all about their dirty tricks and, naturally, being the kind of person you are, you decide to do something about it.

You will have the chance to do a bit of time-travelling, find and change into different people and do a little flying – as in feathered variety. Text descriptions are just what the doctor ordered and the problems are well-thought-out without being too difficult.

Overall, an excellent first attempt and with sequels hovering in the not-too-distant future, plus the very low price, makes this adventure essential.

MONSTERS OF MURDAC

- ► *Amstrad, CPC464/664/6128*
- ● *Global Software*
- ● *Adventure*
- ● *£7.95 tape, £14.95 disc and 8256/8512 £19.95 Disc*

Amstrad owners starved recently of really good adventures should now sit up. Global Software is releasing the best adventure I have seen for a long time on the Amstrad. Forthcoming games will be *Kingdom of Hamil.* BBC owners will know it, as well as *Countdown,* another classic from the BBC stable.

The plot set in the mysterious land of Murdac is the usual find treasures, kill monsters, solve non-logical and logical problems and, in general, have a good time. There is nothing like a good old Orc-bashing, Troll-slaying adventure and this game has it all.

Starting your quest once more outside the obligatory small brick house, it is wise to look quickly through the graveyard and flower-beds, or you will be faced with a blank wall, which happens to have been built by two not-so-friendly Orc bricklayers. If you were wise, all will be revealed but remember what happened in *Jerico* and one problem will be overcome. After your little sojourn outside it is time to enter the house. By that time you should have the means and off you go into the favourite realms of adventurers – dark gloomy caves, vast underground rivers and those nasty little dungeons which always seem to trap you.

Not unlike an Infocom game in text descriptions and screen layout, the adventure moves along at a steady pace. The problems are not difficult but need to be worked out carefully. There is no need to examine anything as everything is described fully. All you need to work out is where the item is to be used.

GRAPHICS
None
ATMOSPHERE
● ● ● ●
PLAYABILITY
● ● ● ● ●
VALUE FOR MONEY
● ● ● ● ●
OVERALL
● ● ● ●

One thing I like about the game is the way you are allowed to explore freely before the need to start saving and solving the problems; and save you must, because the authors, John Thackry and Jon Partington, have devised some mean ways of killing you. They include being strangled by The Old Man of the Sea, eaten by cannibals, meeting a rather poisonous Manticore and other novel ways of preventing you reaching your goal.

Monsters of Murdac has instant appeal and will keep most players pounding away at the keyboard to the early hours of the morning. I can only hope that the game is converted to other machines so that everybody can enjoy it.

JEWELS OF DARKNESS

► *All*
● *Rainbird*
● *Graphic/Text Adventure*
● *£14.95-£19.95*

In the adventure world there are not many games which could be called true classics. A few have earned the accolate but few are more deserving of it than the early adventures from Level 9. For sheer enjoyment with a wealth of problems, massive locations and terrific atmospheric text descriptions, few games, even of today's standard, could match the excitement generated by Pete Austin and company.

It appeared to be impossible to improve them in any way but with the release of *Jewels of Darkness* they certainly have been.

Jewels is an omnibus of the Colossal Trilogy containing *Colossal Adventure, Advenutre Quest and Dungeon Adventure,* enhanced and with graphics included, but before we deal with the additional features, let us look at the adventures.

Colossal Adventure is the re-make of the original Crowther and Wood *Adventure* with an additional 70 locations for good measure. That is like an adventure itself. Starting in the old stone hut, you must make your way into the massive underground cave system, where you will find much to amuse and confuse you. The main objective is to find all the various treasures and return with them to the hut. It sounds easy but with the devious mind of the author at work, I can assure it is not.

Adventure Quest is set some 100 years after the caves have been robbed. As an apprentice magician your task is to find and defeat the evil Lord Agaliarept, who happens to have a murderous band of Orcs camped conveniently outside your king's door. The evil Lord has issued an ultimatum – surrender now and die with dignity; and you have only one week to decide.

The king has only one alternative. Quickly calling the leader of the Wizard's Guild, he reminds him of all the favours bestowed on the Guild through the years and now is the time to repay them. Either defeat the Lord in one week or it is head-chopping time – and that is where you come in.

GRAPHICS
● ● ●
ATMOSPHERE
● ● ● ● ●
PLAYABILITY
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VALUE FOR MONEY
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OVERALL
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Once again, the imagination of the writer presents you with all kinds of weird and wonderful problems to overcome before yuou find and defeat Agaliarept. They include having to find the four element stones, keep out of the way of a giant sandworm, cross burning deserts, climb Orc-infested mountains, cross swamps where magical hands grab you from all sides until you eventually reach the Black Tower – and guess who lies in wait for you there?

Dungeon Adventure continues the day after the defeat of Agaliarept. Playing the part of a soldier of fortune, it dawns on you quickly that there must be plenty of loot in the Black Tower, so off you go as fast as possible to do some old-fashioned pillaging. By far the most atmospheric of the three, Dungeon barely lets you catch your breath before some other frustrating problem faces you. Once again there are many locations and some distinctly distasteful characters and things to overcome makes for smashing adventuring.

All three games are written using the new parser system. New commands added are the OOPS command – very useful when, having made an incorrect move; typing OOPs takes you back to the previous location; RAM save which, as it suggests, saves to RAM, therefore dispensing with the need to save to tape until you decide to quit the session; and multitasking.

It was strange seeing graphics but they are a cut above the normal Level 9 graphics and enhance the overall playability of the games.

My opinion is that with the release of Jewels, Level 9 has once again brought back fun to adventuring, so even though you may have played the games in their earlier forms, do not let that deter you from buying them again. For those who have not yet played them, buy a copy as soon as possible.



GUIDE TO THIS MONTH'S REVIEWS

AMSTRAD
Speed King

COMMODORE 64
Thai Boxing
Hole In One
Infiltrator
Super Cycle
Parallax
Beyond The Forbidden Forest
Miami Vice

COMMODORE 128
Thai Boxing

COMMODORE C16
Jailbreak
Leaper

SPECTRUM
Lap Of The Gods
Xarq
Tennis
Head Coach
Octagon Squad

VARIOUS
Trivial Pursuits

Software Shortlist

Each of the games reviewed in Software Shortlist has been reviewed extensively by our team of reviewers.
We do not include reviews of unfinished products in this section of *Your Computer;* they are the games you can buy now or in the near future.
See the Software News and Preview features for advance news of games being developed.

Watch for the *Your Computer* Soft Stars. They are awarded to games which, in our opinion, offer outstanding value.

INFILTRATOR

► *C64 ● U.S. Gold ● Simulation ● Francis Jago ● £9.95*

Bouiderdash, Chris Gray's first well-known computer game, never achieved the amount of success it deserved in the U.K. Although it reached number one in the U.S., it barely made the top 40 here.

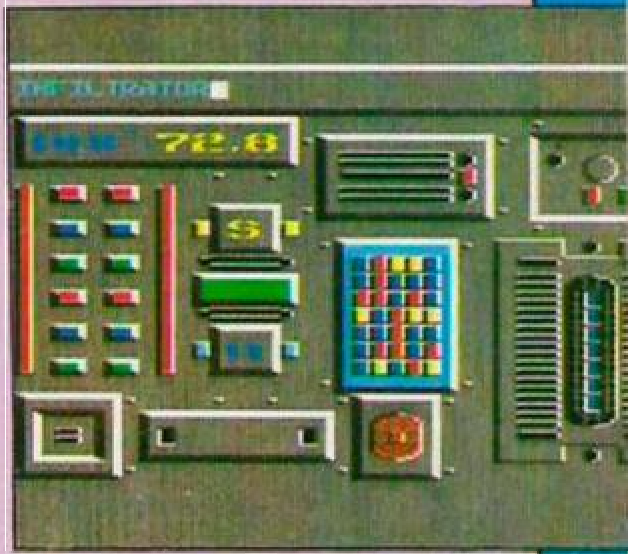
Consequently there was no real fuss in the U.K. when U.S. Gold announced that it had obtained the rights to *Infiltrator*, the newest game by the author of Boulderdash. There should have been.

You play Johnny "Jimbo-Baby" McGibbits, also known as The Infiltrator. In a usual day for Jimbo-Baby, you must save the world from destruction. To do so you must complete various gruelling tasks, starting with flying the Whizbang Enterprises Gizmo DHX-1 attack helicopter.

To complete Infiltrator successfully you must fly the helicopter into enemy territory, land, bluff your way into the enemy base, save the world and then escape. At first the control panel looks dauntingly complicated but soon, as the sweat on your palm increases, your reactions take over and flying becomes nothing but pure instinct. Well, that is the idea. In practice, a few hours at the manual proves essential.

Using the tactical maps you navigate, especially as Jimbo-Baby's sense of direction is almost as bad as that of a blind lemming. Graphically, the simulation is the most impressive part of the game, with moving fingers, animated thumbs and impressive 3D.

GRAPHICS
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SOUND
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PLAYABILITY
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VALUE FOR MONEY
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It is only on landing, however, that you discover the true depth of Infiltrator. Using a variety of pieces of equipment, you must avoid the enemy and perhaps then you might complete the game – but only perhaps.

Graphically, the second and third sections of Infiltrator are not as good as the original flight simulation. On the other hand, for people who are not fans of flight simulations, however pretty, will be pleased to see much more arcade orientated sections.

My only criticism of this game would be that it attempts to be all things to all people, and in doing so has had to compromise its position as a game that requires thought as well as an itchy finger, but this is not a major failing.

Infiltrator is a game which should appeal to simulation fans and arcade players. For the money, there is plenty of game and that bodes well for the future of full-priced games.

XARQ

► *Spectrum ● Electric Dreams ● Arcade ● Francis Jago ● £9.99*

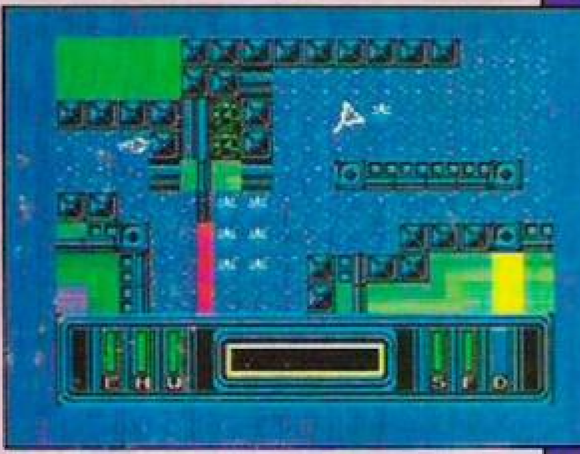
Computers running wild seems to be an excellent topic for games, even if it is now a little over-used. In *Xarq*, the latest release from Electric Dreams, a computer-created island is about to be destroyed by the computer which created it.

There is one chance. If you can get into the main area and destroy the central power reactor, the world on which you live will be saved. To help you in that arduous task is an impressive Nik-Nik Hi-Speed Hydraboat which, in fact, looks like a small white splodge.

On loading, and having spent a time poring over the instructions, a problem is encountered. Although a pleasant scenario has been written, the game has been ignored, thus making playing very difficult.

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VALUE FOR MONEY
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That criticism apart, Xarq has some excellent features which should make it appeal to a wide variety of Spectrum game-players. Control of your Nik-Nik is via keyboard or joystick, although even the most dextrous gamers will find using the keyboard almost impossible. To destroy the variety of enemies you encounter requires use not only of lasers



but guided missiles, mortars, and in special cases, depth charges.

The graphics and sound are good, with obvious attention to detail, and help to make Xarq an above-average game which, although by no means perfect, will certainly provide a challenge.

SUPER CYCLE

► *C64 ● Epyx/U.S. Gold ● Arcade ● Francis Jago ● £9.95*

Motorcyclists everywhere at last can really experience the sensation of screaming round a left-hander with your knee scraping the tarmac. Arcade goers immediately will recognise *Super Cycle* as an excellent copy of the arcade sensation, *Hang-On*. Looking at first very similar to *Pole Position*, Super Cycle has



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VALUE FOR MONEY
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sufficient extra features to hook almost any games player.

Programmed by the premier U.S. software house, Epyx, as usual the attention to detail is phenomenal. The ability to choose not only the colour of your motorcycle but also the colour and pattern of your leathers allows you to mimic perfectly such starts of Kenny Roberts and Kork Ballington.

The graphics are fairly standard, especially when compared to games such as *Revs*, but when you corner hard and the little man leans right over you can almost feel the tension.

Supposedly based on the 750cc. class, although having only three-speed gears puts an end to any attempt at reality, the revolution counter red-lines at 10,000 revs, which amounts to about 140mph in top gear.

With three levels and many different tracks, including such obstacles as closed lanes, ice, oil and rain, not to mention the other machines, it proves extremely challenging.

Games from Epyx can be relied on to be excellent and Super Cycle is no exception. It is a game which makes you want to play again and again until you have beaten it, and that will take a long time.

PARALLAX

► *C64 ● Ocean ● Arcade ● Francis Jago ● £8.95*

At first glance, *Parallax* looks to be a combination of two classic shoot-'em-ups, Chris Butler's *Z*, and Andrew Braybrook's *Uridium*. It has the familiar mettalix graphics, combined with some excellent four-way scrolling, and the ship climbs and dives in a very similar way.

As with most shoot-'em-ups, starting to play Parallax is very simple – you pick up a joystick and blast. Parallax has the added dimension that you must guess the height at which the enemy is flying and then adjust your height accordingly.

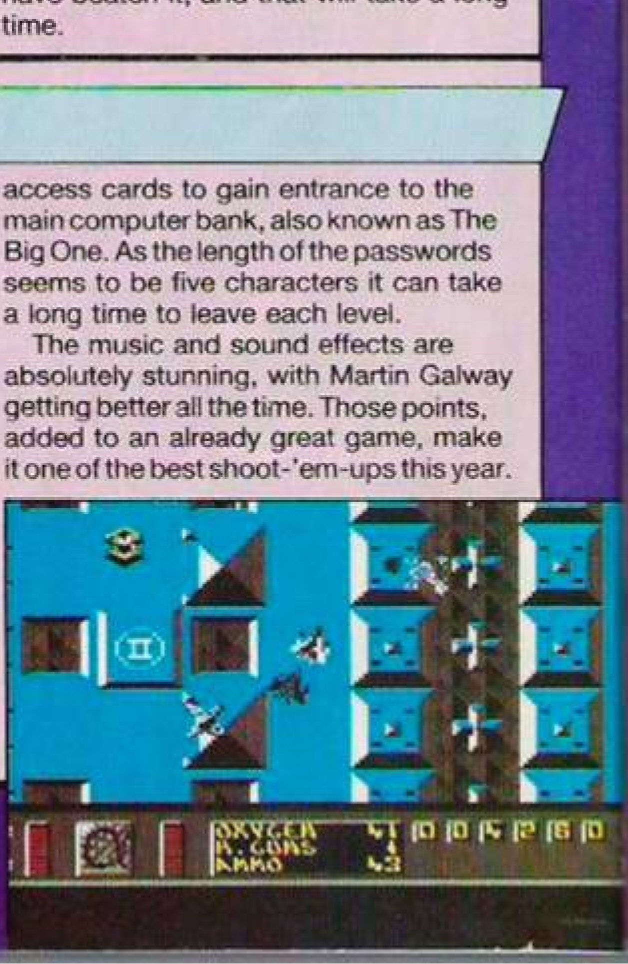
If you land on any of the strips, you can choose to leave your spaceship so long as you have sufficient oxygen. In this mode you are seen as a

GRAPHICS
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VALUE FOR MONEY
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Commando-esque little character, scuttling round the surface. At that point the object is to get in to one of the many hangars and obtain sections of the password to allow you to the next stage of the game.

To gain those passwords you must stun a few scientists and then use their access cards to gain entrance to the main computer bank, also known as The Big One. As the length of the passwords seems to be five characters it can take a long time to leave each level.

The music and sound effects are absolutely stunning, with Martin Galway getting better all the time. Those points, added to an already great game, make it one of the best shoot-'em-ups this year.



MIAMI VICE

► *C64 ● Ocean ● Arcade ● Francis Jago ● £8.95*

Crockett and Tubbs, the only cops to have Pierre Cardin warrant cards, have finally been turned into multi-coloured sprites. Ocean, the company responsible for many of the best licensed games, has converted the popular cop series into a fast-moving arcade game and it is set to take the market by storm.

For probably the first time in any game, the player has the chance to drive a Ferrari Daytona round the streets of Miami, chasing, quizzing and killing a variety of criminals at the same time.

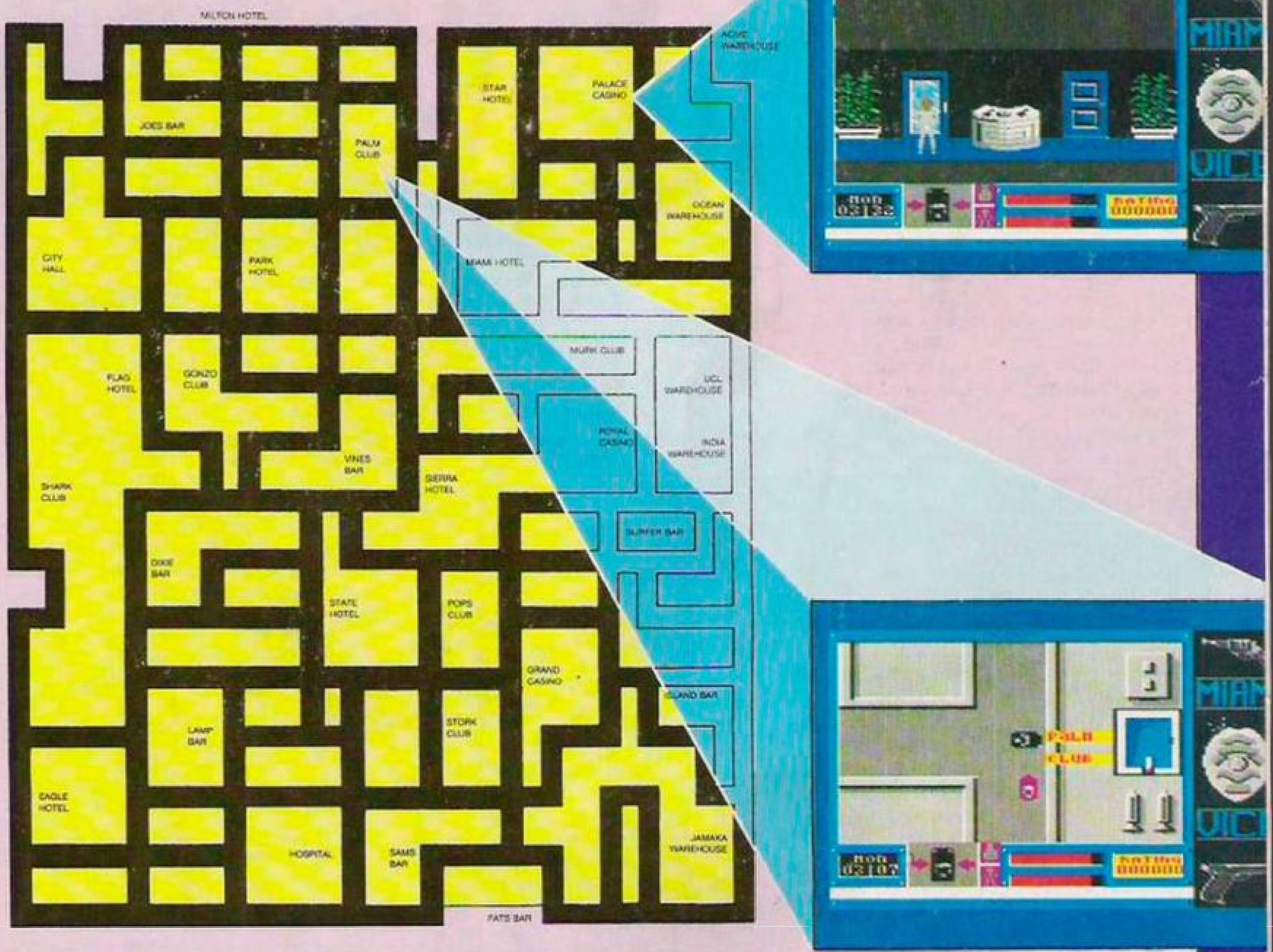
In the game there are three specific sections – driving the car, searching various bars and clubs, and chasing the criminals. The last section is made considerably easier by the fact that criminals always drive red cars.

To apprehend a criminal, you must arrive at the correct meeting place, which could be any of eight bars, enter the bar, and start quizzing him. Points are scored for collecting contraband, eliciting information, or shooting his getaway vehicle.

Graphically, *Miami Vice* is good though not outstanding. Most of the time is spent controlling the car, whereas the best graphics are reserved for when you are in the bars. Once again Martin Galway has produced an impressive soundtrack, with both a version of the program theme tune and some good incidental music.

Once accustomed to controlling the car, a matter of extreme precision, the game becomes enthralling and frustrating. Whether or not you were a fan of the TV series, the game should appeal. Unlike many games being produced, the value of this game is more than skin-deep.

GRAPHICS
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PLAYABILITY
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VALUE FOR MONEY
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OVERALL
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TENNIS

► *Spectrum* ● *Imagine* ● *Simulation* ● *Daniel McGrath* ● *£8.95*



GRAPHICS
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SOUND
● ● ●
PLAYABILITY
● ● ● ●
VALUE FOR MONEY
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OVERALL
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Of all the Konami conversions Imagine has undertaken, *Tennis* must have been the most unrewarding. Unlike many of the other Konami arcade games, there have been plenty of good tennis games for the Spectrum, culminating with the excellent Psion *Match Point*.

To compete with Match Point, Tennis had to be fast, playable and graphically superb. What is a surprise is that Imagine has taken an obvious amount of care to make sure this is the ultimate simulation of a sport which gave us such stars as John McEnroe, although without the tantrums.

What makes this game so enjoyable is the ease with which you can get into it. Unlike many games, there is no need to be a professional player to give the computer a relatively good run for its money.

The ability to have two-player games is a much-overlooked option but Tennis compensates for that with two differing double-player options. Not only can one player play a friend but two friends can tackle the computer in a demon game of doubles.

The accuracy of the flight of the ball is something of a marvel, especially with the well-defined shadow. Extras such as realistic net-cords and some thrilling net play makes it the definitive tennis simulation for Spectrum owners; the only question is if it is not too late.

TRIVIAL PURSUITS

► *Various* ● *Domark* ● *Quiz* ● *Francis Jago* ● *£14.95*



The reputation of Domark for producing high-quality games is not particularly enviable. Releases such as *Friday the Thirteenth* have done little to endear it to the buying public. Contrary to popular opinion, however, Domark has never been short of good ideas; unfortunately it may have been short of good programmers.

With *Trivial Pursuits*, its latest release, it has managed to change that. Not only has it acquired an extremely-sought-after licence but it has had it programmed by an excellent group of programmers, Oxford Digital Enterprises.

Packaged in the familiar colour of the original *Genus* version, it remains faithful to the principle of the game, while adding extras only a computer game can provide. To answer the critics who doubted the ability of any computer game to ask questions, Domark has managed to produce a data-tape which increases the total questions to around 3,000, with 500 being stored in the computer at any time.

By adding a character, Tee Pee, who acts as a random number generator, and a question master, Domark has made sure that the game will appeal to quiz fanatics of all ages. In play, the game is divided into two sections, the board area and the question area.

The board is identical to the original, as are the categories, but when you have chosen, you are asked the question in a separate room. In an attempt to make the game more social, you are required to be honest with the game, telling the computer whether or not you answered correctly. Although that is satisfactory for group play, it leads to massive cheating when you play alone.

One very attractive feature of the computer game is the visual and musical questions, which vary from the "Who composed this overture?" to "Which game uses this pitch?"

At £14.95, Trivial Pursuits, the computer game, cannot be called inexpensive but it is head and shoulders above any other quiz game available. In one fell swoop, Domark has re-established itself as one of the top software houses and if it keeps its promise and produces more data tapes, this game will become an all-time classic.



GRAPHICS
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VALUE FOR MONEY
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OVERALL
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HEAD COACH

► *Spectrum* ● *Addictive Games* ● *Strategy* ● *Francis Jago* ● *£8.95*

GRAPHICS ● ●
SOUND ● ●
PLAYABILITY ● ● ● ●
VALUE FOR MONEY ● ● ● ●
OVERALL ● ● ●



With American football booming in the U.K., it was only a matter of time before someone released a strategy game based on running a team; and who better than Addictive Games, producer of the now legendary *Football Manager?*

Fans of other strategy by Addictive Games will soon feel at home with the set-up of *Head Coach*, to the extent that knowledge of the game is by no means essential; the small but informative manual gives a glossary of what's what.

Play is divided into three sections – choosing the team, playing a match, and examining statistics. Unlike an English soccer team, an American football team can have anything up to 50 players, with specific players for offence, defence, and field goals.

Once you have chosen which team you wish to represent, and at what level, the season starts in earnest. Before reaching the Superbowl, you must play no fewer than 15 matches, beating the likes of the Chicago Bears – and crushing the Fridge.

Criticising a game such as this is all too easy but in many ways Addictive has tackled a difficult job well. Why each play has only two downs, rather than the more usual four, I am not sure, but that is only a minor detail.

In the match simulation, there are four offensive and four defensive options, although extras, such as punting, have been omitted. Head Coach is not everything it should have been but for the off-season it should provide a few weeks' fun.

BEYOND THE FORBIDDEN FOREST

► *Commodore 64* ● *U.S. Gold* ● *Arcade* ● *Daniel McGrath* ● *£9.95*



GRAPHICS ● ● ● ● ●
SOUND ● ● ● ●
PLAYABILITY ● ● ● ●
VALUE FOR MONEY ● ● ● ●
OVERALL ● ● ● ●

There are certain games which, however crude in execution, have something to make them both addictive and frustrating. It is nothing to do with either the graphics or the sound but instead is the thought put into the game before it was programmed.

Beyond the Forbidden Forest is one such game, except that the sound and graphics are excellent as well. The player must travel through two levels, killing various assorted monsters, which range from evil-looking scorpions to something which can best be described as an animated hamburger.

Each time one animal is slain, the player is rewarded with a golden arrow. The arrow has two purposes; first, it will allow you to be rejuvenated, should you have the misfortune to die and, second, the arrows must be used in the second section. That means that the more creatures you kill early the further you are likely to progress in the game.

Fans of Hammer Horror films will relish the chance to watch some of the most gruesome death scenes since the Texas Chainsaw Massacre, with gallons of blood everywhere.

Using a technique called – wait for it – Omnidimension 4D, the character can be moved into and out of the screen, travelling behind certain objects, and changing size. The score is worthy of a John Carpenter film, with real atmosphere.

Beyond The Forbidden Forest is a game perfectly suited to the Commodore 64 and it is also great fun.

THAI BOXING

► *Commodore 64/128* ● *ANCO* ● *Arcade* ● *Daniel McGrath* ● *£7.95*

It is easy to be critical of 128 games because you expect them to be so much better than those for the 64. There is, of course, no reason for such high expectations, as the 128 graphics capability is similar to that of the 64. So will be no surprise that *Thai Boxing* looks, sounds and plays like a 64 martial arts game – a fairly good one.

The background, as you would expect, changes after every bout. What makes Thai Boxing different is that the angle changes every few minutes. That probably needs more explanation. Initially you grapple with your opponent from opposite sides of the screen. Then you face each other from a 45-degree angle, giving a 3D perspective with your line of attack coming out of the screen.

Another spectacular feature which will appeal to gore lovers is the contestants' faces at the top of the screen. They become more cut, bruised and bloody as the combat progresses, though every now and then the miniature towel man



GRAPHICS ● ● ● ●
SOUND ● ● ●
PLAYABILITY ● ● ● ●
VALUE FOR MONEY ● ● ●
OVERALL ● ● ● ●

appears and wipes away the lacerations.

Anco has done a good job. If you want a martial arts game for your 128 and are not already playing *Fist* in 64 mode, the new features like gore make it well worth examination.

LEAPER

► C16 ● Bug Byte ● Platform ● Francis Jago ● £1.99

OVERALL ● ● ●



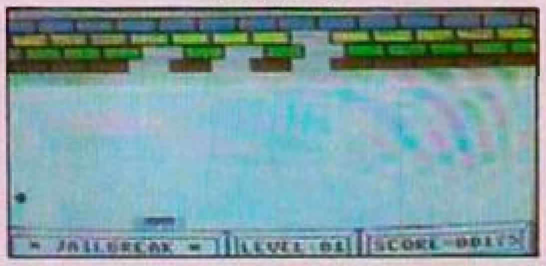
True ledge games seem to have faded into oblivion recently. Consequently, when *Leaper* arrived from Bug Byte, it was received very well. As we all know, old ideas never die – they are just re-programmed and Leaper is one such game.

The idea is to jump upwards as fast as possible through a series of small gaps. Unfortunately you can also fall down those gaps and life is therefore made very difficult. Although neither the graphics nor the sound is outstanding, leaper is very playable and that helps a great deal. Baddies abound and C16 owners could do much worse.

JAILBREAK

► C16 ● Bug Byte ● Action ● Francis Jago ● £1.99

OVERALL ●



Remember *Breakout?* It was a game released many many years ago which involved using a bat to deflect a ball on to a wall. From it, new ideas sprung and, together with *Pong,* it was one of the earliest computer games.

Jailbreak is another version of Breakout. It might have pretty colours and it might have some pleasant sounds but it is still a standard and extremely unexceptional game.

Therefore games such as this cannot, and will not, succeed. Uninspiring graphics and boring game play make it a game to avoid.

OCTAGON SQUAD

► Spectrum ● Mastertronic ● Arcade Adventure ● Francis Jago ● £1.99

OVERALL ● ● ● ●



Spectrum owners who wish they owned an Amiga will immediately be endeared to *Octagon Squad* because of the complicated use of icons to control most aspects of the game.

After a heavy chemical warfare attack, planet 54.7 is in dire need of some help which you are expected to give. Using a heavy dose of strategy, together with an arcade adventure feel, Octagon Squad manages to involve the player at once, although some of the icon uses are less than obvious.

Graphically, it is good though not remarkable. It is left to the game, rather than its presentation, to sell it.

SPEED KING

► Amstrad ● Mastertronic ● Arcade ● Francis Jago ● £1.99

OVERALL ● ● ● ●



Amstrad owners green with envy at the thought of Commodore owners playing *Super Cycle* from Epyx will be pleased to see that Mastertronic has converted *Speed King* to the 464 and 6128.

Although by no means as impressive technically as Super Cycle it still manages to create an impressive feel of motorcycling. Graphically good, and with effective sound effects, it represents superb value.

With maps of all the different tracks, and sensitive joystick control, it is really difficult to get into the top 20 and, even after many hours of practice, victory is unlikely.

LAP OF THE GODS

► Spectrum ● Mastertronic ● Arcade Adventure ● Francis Jago ● £1.99

OVERALL ● ● ● ●



Arcade adventures have proved to be the staple diet of many a software house and Mastertronic has produced some of the best, especially on the Spectrum. Although *Lap of the Gods* is not up to the standard of *Knight Tyme,* it is still a highly-challenging and enjoyable romp.

As the name would suggest, it involves tasks for the gods and in this case it is for the player to deliver the crystals of ZZarn or remain there forever. As with most games of this ilk, extra powers can be gained along the way which, when used correctly, can either help or hinder.

The graphics and sound are good and for a budget game it is a bargain.

HOLE IN ONE

► C64 ● Mastertronic ● Simulation ● Francis Jago ● £2.99

OVERALL ● ● ● ● ●



Commodore 64 owners have had more than their fair share of golf games recently, with *Leader Board* and *Golf Construction Set* both topping the charts. The inevitable question, therefore, about *Hole in One,* is what makes it different?

Graphically, it uses a three-dimensional perspective throughout, with an excellent piece of animation as the player removes his chosen club and plays the shot.

Only when you land on the green does the view change, with an overall look at the green to make the shot easier. With a variety of holes and great graphics.


THAI BOXING
3D ACTION
ANCO
CBM 64/128
Full 3D action – 1 player or 2 player option. Lightning moves.
See the cuts and the bruises on the faces of the boxers, as they kick and punch in this gruelling contest.
11.95 d
7.95 c
9.95 d
Amstrad 6128 13.95 d
Amstrad 64/128 8.95 c
12.95 d
MSX 9.95
Spectrum 128K 8.95
Spectrum 48K 7.95
Atari ST 19.95 d
ANCO

Spectrum 128 – the Amstrad Plus

The 48K Spectrum is the top selling games machine in the U.K. In this, its latest guise, Amstrad hope to continue to maintain its success. Francis Jago investigates the latest addition to the Sinclair stable.

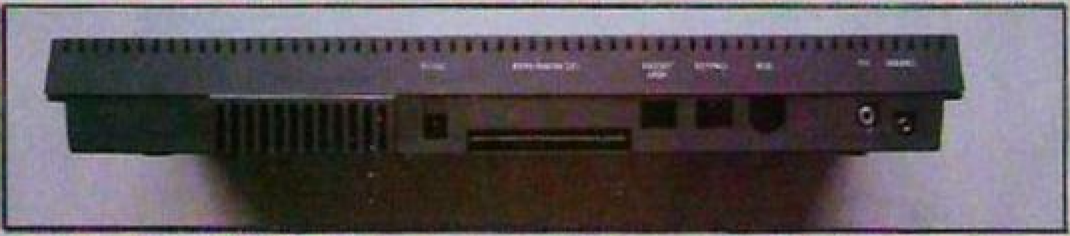
When Amstrad paid £5 million for Sinclair Research, Sinclair had completely lost its way in the computer industry. The two previous Sinclair releases, the Spectrum+, and the Spectrum 128, had both failed to fill the obvious gap for the upgrading Spectrum owner.

It was no surprise therefore when rumours spread that Amstrad was planning to release a new Spectrum. As with all new launches, there was a great deal of speculation as to what the machine would be like. There was even talk of a GEM-like environment, the first for a true home computer.

What was a surprise was the arrival of the Spectrum 128+2. Similar cosmetically to any of the cassette-based Amstrads, rather than the more cluttered Sinclair, its name alone suggested that Amstrad had not wasted a great deal of money in advancing the specification of the Spectrum 128.

On inspection, it becomes apparent that what Amstrad has done is to upgrade a Spectrum 128 into a computer which can compete with the likes of the Amstrad 464, although why it would want to do that is a mystery. A full-travel QWERTY keyboard is the first improvement, along with a more attractive grey colour scheme. By including an internal tape recorder, many of the notorious loading problems should also be over.

Underneath the new facade lies the same 128 which received such strong criticism from software houses for its incompatibility problems. Thankfully Amstrad has removed the dictionary usually engraved on the Spectrum keyboard but all the functions are still there for use in 48K mode, while the manual lists them all very clearly.



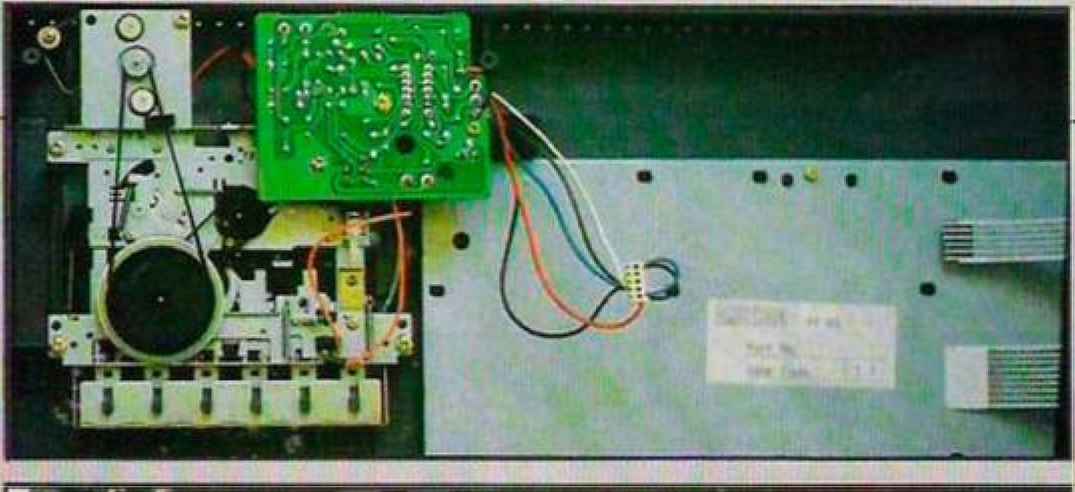
The Spectrum 128K + 2 on edge.



On power-up, users of the Spectrum 128 will recognise the four choices, although not surprisingly there is no tape test. Those options – Tape loader, 128 Basic, Calculator and 48 Basic – are obtained by moving the bar over one and pressing return.

Tape loader allows any 128 games to be loaded directly and in use with official 128 games there were no difficulties. Calculator allows the computer to be used in best Casio style and both Basics act as would be expected.

For port the 128+2 is almost identical to the original 128, apart from two important additions, joystick ports. Placed neatly on the left-hand side of the machine, it seems that Amstrad has paid some attention to critics who pointed out that the 128 could never be taken seriously





An insider's view.

as a games machine without some standard 9-pin ports.

Unfortunately, the non-standard telephone socket Midi output is still the same. Using the 128+ with 48K games, the sound is now wired through the television and, using filters, even the humble BEEP becomes something to notice.

In use, the keyboard will be a real bonus to anyone who has survived through the original 'dead flesh' and the newer QL-style keyboards. It is positive, without being too firm, and is spaced sufficiently so that even the most fussy typist would approve. Again, as with the 128, there is a port at the back for a numeric keypad, although Amstrad, too, has decided that addition is not worth including.

5,000 games

Unlike many previous Sinclair computers, Amstrad has made the 128+2 look and, in use, feel like a well-made and well-assembled computer. No longer can you make all the keys drop off by holding the computer upside down and tapping it.

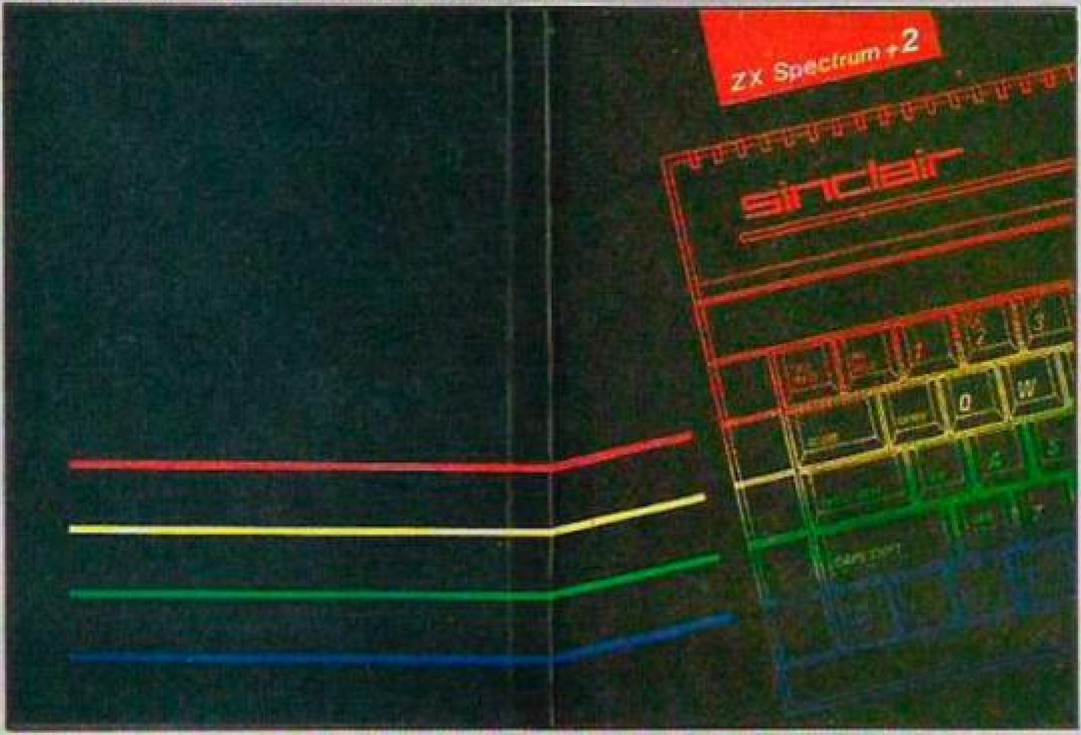
With a software base of considerably more than 5,000 games and utilities, it must be accepted that many people will buy the 128+2 purely as a 48K Spectrum with a few extras. So it was a surprise that the new 128 still seemed to have the compatibility problems of its predecessor. When loading the games which caused the problems in the first place, it was obvious that Amstrad saw the problem as the responsibility of programmers rather than its own.

In an effort to ensure that programs released henceforward do not share those problems, Amstrad has initiated the Sinclair Quality Control system of checking. Unlike other companies, Amstrad seems to recognise the importance of software houses.

One of the first games to have been stamped with the Quality Control seal of approval is *Moonlight Madness* from Bubble Bus and, sure enough, it worked perfectly, loading either directly from the first options screen or by first going into 48K Basic and the entering LOAD "". Commenting on that, Bubble Bus remarked on how simple the procedure is, and that bodes well for the future.

For people unfamiliar with the improvements the original 128 provided, the 128+2 will stand out as having involved a great deal of thought. One of the most impressive new features of the machine is the sound. It uses a port designed specifically for sound output and a powerful new sound chip, the AY-3-8912. To make the most of the chip, a new command has been included, PLAY. As the chip is the same as in the Amstrad range of micros, on which a great deal of good music has been written, and the 128+2 has a far superior means of amplification, any programs used to exploit it could give the Commodore 64 a run for its money.

Spectrum style – the new Amstrad packaging.



For anyone considering the first-time purchase of a computer, the Spectrum 128+2 will be one of the main contenders. It provides neither the monitor nor graphics of the Amstrad 464 but instead it has a library of programs which runs into thousands, even if only a few exploit the full capabilities of the machine.

Priced very competitively at £149.95, it must represent an excellent purchase, especially for people who consider monitors an unnecessary piece of equipment. There are criticisms of the machine but few, if any, can be levelled at Amstrad, which has done an excellent job of re-packaging a computer which had begun to look distinctly staid.

Whether the 128+2 will be seen by 48K Spectrum owners as a perfect route for upgrading is another matter, depending mainly on how willing they would be to throw away some of the programs which refuse to run on the new machine.


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GO FOR THE GOLD
THINGY AND THE DOODAHS
OBSIDIAN
OLÉ TORO
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»THE EXPERT WAY«

This month Thalamus gives clues and tips for graphics on the Commodore 64, including sprites in the border.

In the first of a series, *Your Computer*, with the help of a few well-known programmers, will provide an insight into how they manage to produce such amazing games. We hope it will also stimulate you so that you might be the next star of the programming world.

Attacked by mutant potato rings in Sanxion.

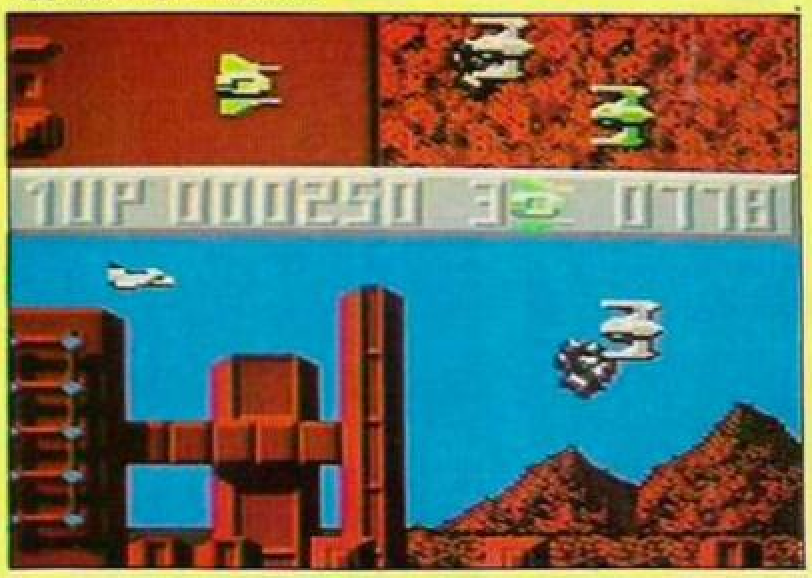


This listing for the Commodore 64/128 was written by Gary Liddon, technical executive with a new and exciting software house, Thalamus. Regular readers of *Your Computer* will recognise Thalamus as the company featured in software previews in August.

Liddon started his programming career at Domark, where he was the technical assistant. Soon, however, he left to work for *Zzap 64*, a gamers' magazine. It was in that role that his flair for programming became obvious and when Newsfield, publisher of *Zzap*, decided to start a software company, he seemed the obvious choice for a technical man.

The first release from Thalamus was orginally titled *Finnblast* but that has been altered to the eminently more suitable *Sanxion*. When the game was first seen by Thalamus, it had only one level and lacked finesse. After many months of hard work, with Liddon spending hour after hour with programmer Stavros Fasoulas, the game has now reached a stage where it will soon be published and it looks as if it will take the games world by storm.

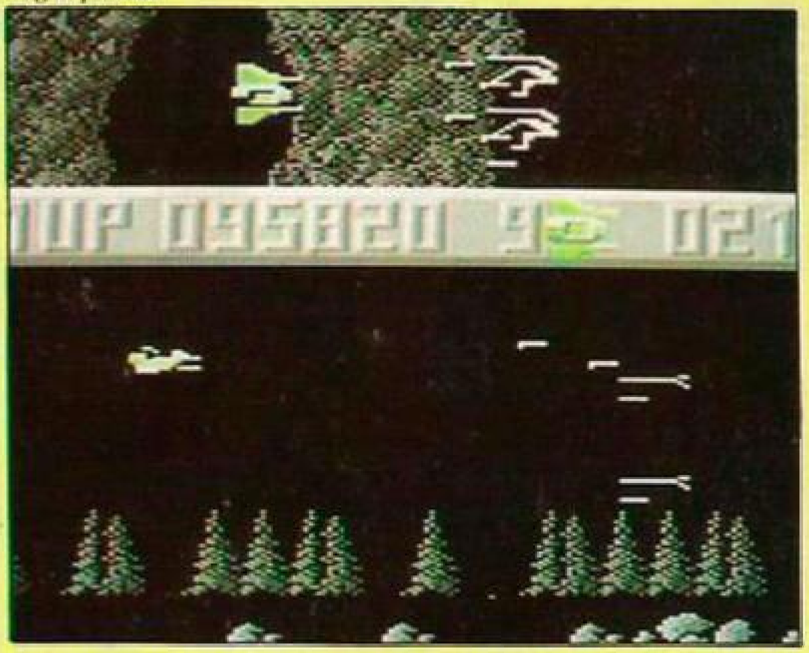
Approaching civilisation.



Bar-o-Matic, the listing Liddon has provided for Commodore owners, will run on the Commodore 64 or on the 128 in 64 mode. To use it, you will need an assembler, preferably *Laser Genius* of Machine Lightning, although it will work with others.

Once you have loaded the assembler, you should set the text memory to $5000,$8000. Once you have typed-in all the listing you should assemble it – on Laser Genius you would use ASM,M – and then run it by typing SYS START. If you save it as machine code, you will be able to load it without the need for an assembler.

Night patrol.



If you do not own an assembler but one of your friends does, ask him either to make a tape or a Basic DATA listing for you to use. As you can see, the listing is already well-documented but many people will find that by altering certain undocumented areas of the code, new effects can be created easily.

What Bar-o-Matic shows well is how smooth movement can be achieved using assembler and how it is possible to write a program to use the border area of the Commodore screen, something not many people have achieved successfully.

Using the joystick in port two, Bar-o-Matic lets you control the movement of the bars up and down the screen, with the one you control being 'chased' by various others. Although there is little point to the program, it is interesting for anyone trying to get the most from Commodore graphics.

LISTING OVER

```
530                 ;
540 START           -$0811
550                  *-START-$10
560                 ;
570                 .BYTE   $0F,$08
580                 .BYTE   $CF,$07
590                 .BYTE   $9E
600                 .BYTE   '2065 '
610                 .BYTE   'GRL'
620                 .BYTE   0,0,0
630                 ;
640                 ;^SETS SYS 2065
650                 ;AS A BASIC LINE
660                 ;
670                 ;
680 TR              -$00
690 BR              -$33
700 VEC             -$FFFE
710 MAX             -5
720 MAX2            -5
730 SPEED           -$40
740 V               -$D000
750                 ;
760                 ;
770                 ;^CONSTANTS
780                 ;
790                 ;
800                 ;
810 PSYC            .DEFMAC X
820                 ;
830                 LDY #X
840                 LDA T,Y
850                 STA $D021
860                 INY
870                 CPY #X+8
880                 BEQ *+8
890                 JSR P1
900                 JMP *-14
910                 NOP
920                 NOP
930                 NOP
940                 NOP
950                 NOP
960                 .ENDMAC
970                 ;
980                 ;
990 GOLD            .DEFMAC
1000                .BYTE   0
1010                .BYTE   2,8,7,1
1020                .BYTE   7,8,2
1030                .BYTE   0
1040                .ENDMAC
1050                ;
1060                ;
1070                ;
1080                ;
1090                ;
1100 ADD            .DEFMAC MM,AA
1110                CLC
1120                LDA MM
1130                ADC AA
1140                STA AA
1150                .ENDMAC
1160                ;
1170                ;
1180 STICK          .DEFMAC SUB
1190                LSR A
1200                PHA
1210                BCS *+5
1220                JSR SUB
1230                PLA
1240                .ENDMAC
1250                ;
1260 POKE           .DEFMAC MM,AA
1270                LDA #AA
1280                STA MM
1290                .ENDMAC
1300                ;
1310 DOKE           .DEFMAC MM,AA
1320                LDA #AA&255
1330                STA MM
1340                LDA #AA/256
1350                STA MM+1
1360                .ENDMAC
1370                ;
1380                ;
1390                ;^MACROS.
1400                ;I AM SO LAZY
1410                ;THAT I MAKE
1420                ;EXTENSIVE USE
1430                ;OF THEM.
1440                ;
1450                ;
1460                ;
1470                ;
1480 BEGIN          SEI
1490                :POKE   $D019,1
1500                :POKE   $D01A,1
1510                :POKE   $D012,TR
1520                :DOKE   VEC,I1
1530                ;
1540                :POKE   $DC0D,$7F
1550                :DOKE   $FFFA,NMI
1560                :DOKE   $FFFC,RES
1570                :POKE   1,$35
1580                LDA $D011
1590                AND #$7F
1600                STA $D011
1610                LDA $DC0D
1620                ;
1630                CLI
1640                ;
1650 ML             JMP ML
1660                ;
1670                ;^SETS UP THE
1680                ;INTERUPTS WITH
1690                ;KERNAL OUT.
1700                ;
1710                ;BELOW SETS
1720                ;RESPONSES TO
1730                ;NMIS + RESETS
1740                ;
1750                ;
1760 NMI            :POKE   $01,$36
1770                JMP $FE66
1780                ;
1790 RES            RTI
1800                ;
1810                ;
1820                ;
1830                ;
1840                ;
1850                ;
1860 I1             PHA
1870                TAX
1880                PHA
1890                TAY
1900                PHA
1910                ;
1920                JSR JOY
1930                JSR FINAL
1940                ;
1950                :POKE   $D019,1
1960                :POKE   $D012,BR
1970                :DOKE   VEC,I2
1980                ;
1990                LDX #1
2000                LDY #0
2010 LP32           JSR SUSS
2020                INX
2030                CPX #8
2040                BNE LP32
2050                ;
2060                ;
2070                PLA
2080                TAY
2090                PLA
2100                TAX
2110                PLA
2120                RTI
2130                ;
2140                ;
2150                ;
2160 I2             PHA
2170                TYA
2180                PHA
2190                ;TXA
2200                ;
2210                :POKE   $D019,1
2220                ;
2230                ;
2240                :PSYC   0
2250                :PSYC   8
2260                :PSYC   16
2270                :PSYC   24
2280                :PSYC   32
2290                :PSYC   40
2300                :PSYC   48
2310                :PSYC   56
2320                :PSYC   64
2330                :PSYC   72
2340                :PSYC   80
2350                :PSYC   88
2360                :PSYC   96
2370                :PSYC   104
2380                :PSYC   112
2390                :PSYC   120
2400                :PSYC   128
2410                :PSYC   136
2420                :PSYC   144
2430                :PSYC   152
2440                :PSYC   160
2450                :PSYC   168
2460                :PSYC   176
```

```
2470            :PSYC    184
2480            :PSYC    192
2490            :PSYC    200
2500            ;
2510            :POKE    $D021,6
2520            ;
2530            :DOKE    VEC,I1
2540            :POKE    $D012,TR
2550            ;
2560            CLI
2570            JSR CLCBF
2580            ;
2590            ;
2600            PLA
2610            TAY
2620            PLA
2630            ;
2640            RTI
2650            ;
2660            ;
2670            ;
2680            ;
2690            ;
2700 P1         CLC
2710            LDA #7
2720 LP98       SBC #1
2730            BNE LP98
2740            RTS
2750            ;
2760            ;
2770            ;
2780            ;
2790            ;
2800            ;
2810            ;
2820            ;
2830 FINAL      :ADD     YS0+1,Y0
2840            :ADD     YS1+1,Y1
2850            :ADD     YS2+1,Y2
2860            :ADD     YS3+1,Y3
2870            :ADD     YS4+1,Y4
2880            :ADD     YS5+1,Y5
2890            :ADD     YS6+1,Y6
2900            :ADD     YS7+1,Y7
2910            ;
2920            LDX #0
2930 LP71       LDA COTAB,X
2940            TAY
2950            TXA
2960            PHA
2970            ;
2980            LDX #SPF-SP-1
2990 LP61       LDA SP,X
3000            STA T,Y
3010            DEY
3020            DEX
3030            BPL LP61
3040            ;
3050            PLA
3060            TAX
3070            INX
3080            CPX #8
3090            BNE LP71
3100            ;
3110            ;
3120            ;
3130            ;
3140            ;
3150            RTS
3160            ;
3170            ;
3180            ;
3190 JOY        LDA $DC00
3200            :STICK  UP
3210            :STICK  DOWN
3220            RTS
3230            ;
3240 UP         LDA YS0+1
3250            CMP #0-MAX&255
3260            BEQ OFF3
3270            SEC
3280            LDA YS0
3290            SBC #SPEED
3300            STA YS0
3310            BCS OFF3
3320            DEC YS0+1
3330            RTS
3340            ;
3350 DOWN       LDA YS0+1
3360            CMP #MAX
3370            BEQ OFF3
3380            CLC
3390            LDA YS0
3400            ADC #SPEED
3410            STA YS0
3420            BCC OFF3
3430            INC YS0+1
3440 OFF3       RTS
```

```
3450            ;
3460            ;
3470            ;
3480            ;
3490            ;
3500 SUSS       TXA
3510            PHA
3520            ;
3530            SEC
3540            LDA COTAB,Y
3550            SBC COTAB,X
3560            PHA
3570            TXA
3580            ASL A
3590            TAX
3600            PLA
3610            BMI SX4
3620            ;
3630            CLC
3640            ADC SPTAB,X
3650            STA SPTAB,X
3660            BCC OFF
3670            LDA SPTAB+1,X
3680            CMP #MAX2
3690            BEQ OFF
3700            INC SPTAB+1,X
3710            JMP OFF
3720            ;
3730 SX4        CLC
3740            ADC SPTAB,X
3750            STA SPTAB,X
3760            BCS OFF
3770            LDA SPTAB+1,X
3780            CMP #0-MAX2&255
3790            BEQ OFF
3800            DEC SPTAB+1,X
3810            ;
3820 OFF        PLA
3830            TAX
3840            ;
3850            ;
3860            RTS
3870            ;
3880            ;
3890 CLCBF      LDY #200
3900            LDA #6
3910 LP4        STA T,Y
3920            DEY
3930            BNE LP4
3940            ;
3950            RTS
3960            ;
3970            ;
3980            ;
3990            ;
4000 SPTAB
4010            ;
4020 YS0        .WORD    0
4030 YS1        .WORD    0
4040 YS2        .WORD    0
4050 YS3        .WORD    0
4060 YS4        .WORD    0
4070 YS5        .WORD    0
4080 YS6        .WORD    0
4090 YS7        .WORD    0
4100            ;
4110 COTAB
4120            ;
4130 Y0         .BYTE    $A0
4140 Y1         .BYTE    $B0
4150 Y2         .BYTE    $C0
4160 Y3         .BYTE    $D0
4170 Y4         .BYTE    $E0
4180 Y5         .BYTE    $F0
4190 Y6         .BYTE    $90
4200 Y7         .BYTE    $80
4210            ;
4220            ;
4230            ;
4240            ;
4250            ;
4260            ;
4270            ;
4280            ;
4290            ;
4300            ;
4310            ;
4320            ;
4330 F
4340            ;
4350            *=$0100+F/256*256
4360 T
4370            ;
4380            ;
4390 TF         *=T+$0100
4400 SP         :GOLD
4410 SPF
4420 FIN
```

Sky-high software pilots

Of all the games available for computers, flight simulators are some of the most consistently successful. Tom Courtney traces the history of these exciting software packages, remembering some of the classics and comparing them to their new competitors.

Are you made of the proper material? Could you handle yourself in a modern supersonic fighter? Those questions and more are answered when you are behind the joystick of a computer flight simulator. These days, when a jumbo gets into difficulty as the pilot and co-pilot go down with beri beri, people are trampled in the rush as *Solo Flight* aces elbow aside *Aviator* hot-shots, only to be beaten to the cockpit by a *Flight Simulation* veteran. So next time you find yourself on the way to Torremolinos and in that predicament, in which of the maniacs – if any – should you put your trust? If of a self-reliant bent, where is the best training for you and your micro?

Flight simulators and micros were virtually made for one another. In one end is fed the flight data of the aircraft, the laws of aerodynamics and the pilot's frantic heaving at the controls, and out of the other there is a graphical display and readouts of height, speed, direction and so on – pure number-crunching.

Unfortunately, unless someone straps a Cray to a micro, there will have to be compromises on the simulation of flight and it is on how well those compromises are made that the success of any flight simulator depends. There are three types – emulators which are shoot-'em-ups with a faint suggestion of flying; fighter simulators where the main object is to deal death and destruction but go further down the line when it comes to performance and accuracy; and finally the purist simulator which is normally far more accurate, if a little on the dull side.

Skyfox from Ariolasoft is available on the popular formats and is basically a shoot-'em-up with flying overtones. Despite no aerodynamics and little realism, the game achieved great popularity. Its exceptional selling point is the way the enemy moves. There are various levels and various types of game, such as wall, massive onslaught and so on. Each of those tactics requires a different approach as the enemy attacks in a different way.



The Ace flight simulator.

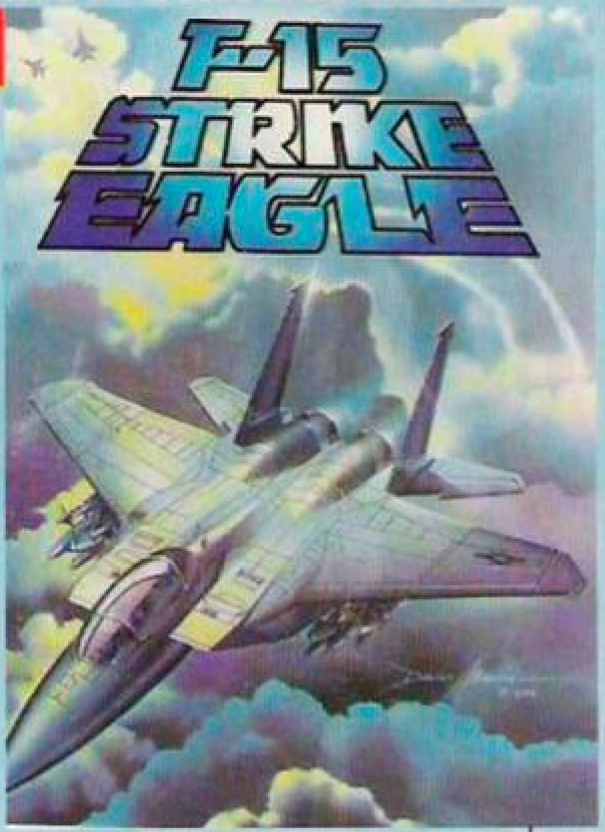
The instrumentation is satisfactory and there are many on-board flight aids and a navigational computer to give the game a high-tech, futuristic feel. My favourite in this class is *Combat Lynx* from Durell. It is not a simulator by any stretch of the imagination, nor does it try to be. Durell calls it a battlefield simulator. A certain amount of resources are scattered round the battlefield and there is a large number of enemy trying to over-run some bases.

You fly a helicopter and try to destroy the enemy while protecting your bases. The problem is that the bases are too widely-scattered to be defended. That means your first task is the rather dull one of placing minefields round all the bases. Then it is a matter of returning to the central base and waiting for messages from the computer about enemy attacks and going to deal with them. Including mines, there are nine types of payload, with troops to reinforce positions under attack, and you can also evacuate wounded men to the hospital at the central base.

If running round like a wet nurse sounds a little tame, there is always the shoot-'em-up method. There are tanks, guns and trucks – some friend, some foe. Each can best be dealt with by a different weapon and some are far more aggressive than others. There are also enemy helicopters and jets. Leaving the bases to their own devices, you can use the on-board map to reveal enemy units and clatter off to blow them away; select the appropriate weapon and stalk them over the undulating countryside as you hug the contours.

That is the feature which makes Lynx exceptional; the countryside is in 3D





relief, a little like the effect you get looking through an electron microscope. The helicopter controls are simple – left, right, up, down, forward, back; it is not realistic but it was never meant to be. For the beginner, it is a pleasant shoot-'em-up; for the experienced and patient old hand, it is a complex battle of cat and mouse with the enemy which can last for hours.

Moving to fighter simulators, the daddy of them all is *Fighter Pilot* from Digital Integration. Programmed by David Marshall, who used to do that kind of thing for the MoD, it was way ahead of its time when it appeared on the Spectrum almost two years ago, and the various conversions which have appeared since still look good compared to the opposition.

The scenario for Fighter Pilot is simple; an area containing five bases must be defended from enemy bombers. Fortunately, the bases are attacked in order, so it is obvious where the enemy aircraft are headed. So wind up the throttle, put in the afterburners, hurtle down the runway, and retract the undercarriage. Turn on the radar, locate the enemy. Once at maximum altitude, the aircraft levels out; then steer for the enemy. Once over enemy territory, roll inverted, cut the throttle and pull back. With a little luck all that should allow the aircraft to be rolled out right behind the enemy at the same altitude.

What happens next depends on the skill level. On novice, the enemy will swan along happily, straight and level while you close the range and put some lead up his tailpipe. On the higher levels, culminating with ace, the aircraft will take evasive action. Now there is the problem – close too fast and the enemy will out-turn you; close too slowly and the base will be a heap of rubble before you reach him.

If that is not sufficient, they keep coming. Sooner or later, the bullets and gas will run out.

The game was still the best thing for the frustrated fighter pilot until earlier this year when Marshall did it again. The product was *Tomahawk* and, to my mind, it stands head and shoulders above the rest. It is a simulation of the Hughes Apache attack helicopter, a mean piece of hardware equipped with radar homing missiles, rockets and cannon.

There are the usual four levels but now there are four scenarios as well. They dictate the disposition of enemy forces and what has to be done to win the game. The game is mainly about ground attack. Obviously if you want to simulate an aircraft correctly, you must simulate its major role; the Apache is not designed to chase other helicopters. There are guns and tanks strewn round the battlefield, some friendly, others enemy. The helicopter is used to destroy the enemy forces and thus help the friendly forces win the ground battle. A large number of landing pads are available which become friendly, i.e., usable, if the area is under your control. Once on the ground, you can teleport from base to base wherever danger threatens.

The game should appeal to a wide spectrum of games players. It is easy to play, fast, with plenty of action. It takes a little time for even the hardened simulations man to become accustomed to the controls. Pushing down the nose increases speed; the collective – a kind of throttle – changes lift. The faster the helicopter is going, the more collective required for level flight. Landing is fairly easy – slow reduction of the collective and ace level, it is possible to do this only if going flat out at 180 knots. The enemy guns outrange you, so you must cover the dead zone fast. If all that sounds a little too easy, add some low cloud, trees, mountains, buildings, winds, turbulence and night flying. There is a real thrill about skimming along at 180 knots below the treetops with the enemy in your sights. It is a simulation which will take



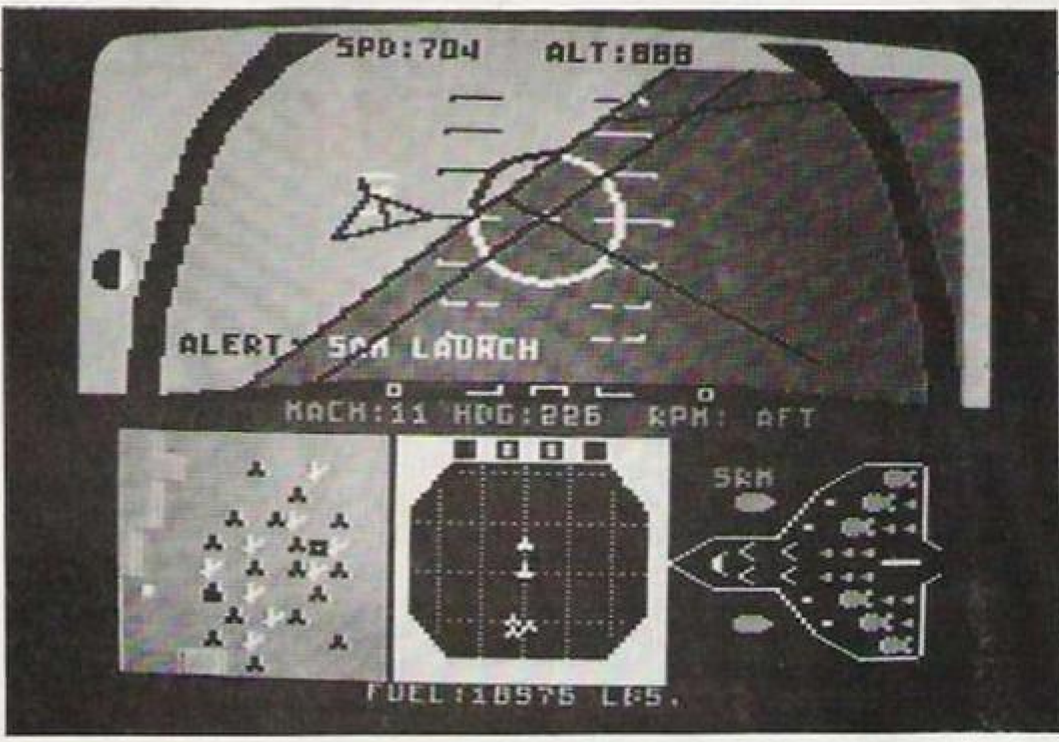
A ground attack in Tomahawk.

a little tweaking back on the stick. There is also a ground effect which means that if the helicopter sinks slowly from around 100ft. it will fly level once it reaches 10ft. That makes landing easy and, once down, the chopper can be trundled around until the pad is reached.

Then, if you are feeling lazy, let fly with a fire-and-forget radar homer at a safe distance of two miles or so, or get close and mix it with rockets and cannon. At beating. If all this high-tech stuff sounds a little tame, perhaps the Spitfire simulators could be up your street. Aviator is for the BBC micro only. The wireframe black-and-white graphics look a little out-of-date these days, like watching an old black-and-white war film. Unfortunately, the Huns have undergone a nasty transformation and now appear as alien beasties attacking a town and have to be cannoned into oblivion.

Apart from the odd bridge to fly under, this offers very little but Acornsoft says it is accurate and has crusty old men with walrus faces and handlebar moustaches to vouch for it.

Similar claims are made for the Mirrorsoft *Spitfire 40.* You start as a lowly recruit and the idea is, by killing Krauts, to work your way up the ranks to Group



Captain, OBE, VC, DFC and bar and just about every other gong available. So off you go; strap yourself in and take off. There is a map which shows the number and position of the enemy; instruction messages, like the real ground control, would have been much more satisfactory.

Once at the appropriate location and height, the enemy begin to appear. That is really where things become a little rough. Instead of diving on to a formation of enemy aircraft spotted as dim specks on the horizon, the sploggy great sprite lands on top of you and off you go dog-fighting. Chase after it, get close, get it in your sights, and let fly. Then, once one is disposed of, another turns up; it is so accommodating of them to wait their turn.

It always struck me as a lovely simulation of a Spitfire ruined by a rather nasty combat portion which seemed to have been stuck on as an afterthought. The Spitfire seems to handle very well, with all the foibles you read about in the wartime stories. There are two displays, the out-of-the-cockpit view used for landing and fighting, and an instrument panel, more useful during navigation. It has good sound effects of the engine, and even wheels when on the ground, and has a separate rudder permitting all kinds of fancy turns and rolls.

The other Mirrorsoft sortie into the simulator business is *Harrier Attack*. It is really at the other extreme; no more seat-of-the-pants, it is all bells and whistles now, and loud ones at that. Along with such useful messages as "Someone is shooting at you" and "You are about to crash" are ear-splitting warning sounds which will have you pulling wires off the computer loudspeaker in no time.

When we deal the purist flight simulator, the choice is clear. It is either Solo Flight, on the CBM-64 and Atari from Microprose, or Flight Simulator II on the CBM-64, Atari and IBM PC from Sublogic. Which you prefer is a matter of taste. Both are beautifully-detailed and accurate; they really feel like flying. Both have received endoresements from various flying schools suggesting that they help teach the real thing.

Of the two, Solo Flight is far easier to learn but Flight Simulator II has better graphics, inside and outside the cockpit. In Flight Simulator II, you have a conventional out-of-the-cockpit view, with a full array of dials and gauges as would be seen if in the cockpit of a real aircraft.

Outside, the scenery is full of wire frame graphics, including the Empire State building and the World Trade Centre. So if you have ever had a desire to crash into a major public building, this is your chance. Sub Logic claims to have a policy of releasing further scenery discs to allow aviators to fly round other stretches of the country. So far, one has appeared but has not been released in the U.K.

Solo Flight has a slightly unconventional view from behind the aircraft, although the view can be switched to the side and the rear. The latest version of Solo Flight has a total of six states to fly around and even has an instructor pilot mode where digitised speed guides the novice round the first circuit of the airfield. There is also contest mode to allow several players to see how good a landing they can do, and an instrument flying test. The real guts of the game is the mail pilot scenario, in which an underpowered bucket has to be flown around the state delivering mail. That introduces all kinds of things like navigation, route planning, fuel requirements and so on. To make matters worse, as the game proceeds at the higher skill levels, the weather begins to close in and instruments start to fail.

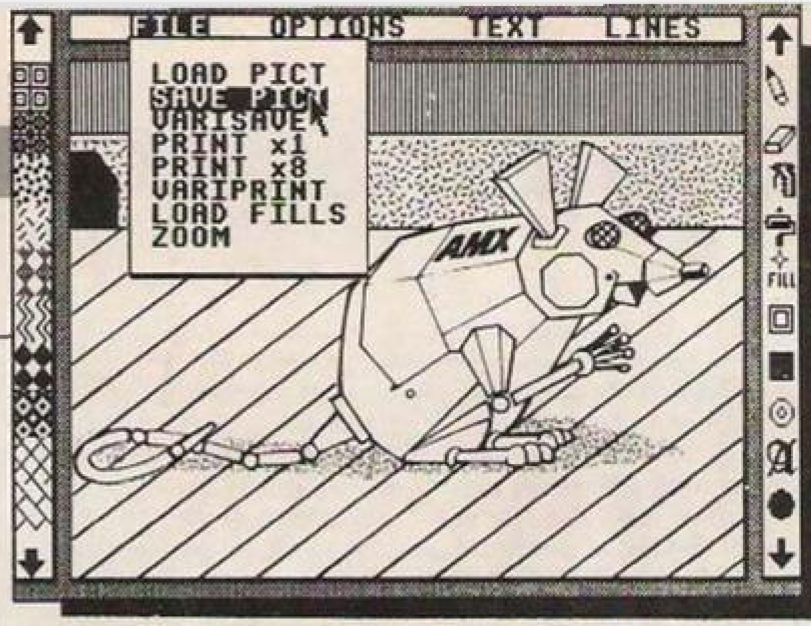
The latest Microprose simulator is *Acrojet*. It is like Solo Flight but the aircraft being modelled is a stunt jet, like that used in the James Bond Octopussy film. The idea is to attempt various events at an air show – either single events or a bunch against other people. Points are scored for time and efficiency.

It is really only for the true afficianado. To get the best times, the aircraft and pilot must be pushed to the absolute limit. There is wind to contend with as well, though fortunately no cloud. There is a big instruction manual dealing with all the standard stunts, with hints on how not to have any unfortunate encounters with the old cumulo granite.

Picking one from this collection is obviously a difficult task. My preference is Combat Lynx from the emulators, Tomahawk from the fighters and Solo Flight from the simulators. They are not the kind of games which can be picked up and immediately understood but if you are the kind of games player who likes to keep brain as well as trigger finger busy, they could be what you seek.



This article appeared last month but reproduction problems meant that a crucial section was illegible. We are, therefore, reproducing the feature. Ed.



Roger Garrett reports on utilities any good artist should not be without.

Graphics on the Amstrad

Graphics utilities are in many forms. They range from the basic draw-a-circle, colour-it-in-type through to those for the more serious, advanced user. We look at three types of drawing aids, The Mouse, The Graphpad and, finally, The Conventional manner, i.e., keyboard input.

Three ways of creating whatever your imagination allows, they do not represent the best of what is available – only you can be the judge of that. Suffice it to say they represent some of the graphics utilities which are available.

Of the three packages at which I looked I must confess the one which pleased me most in terms of user-friendliness was the AMX Mouse; combining ease of use with very good software, it offers the budding artist all that is needed to create excellent graphics on-screen. It will also allow more serious programmers to create their own designs for use in their programs.

Segments

On loading, you are presented with a well-defined art-screen. The screen is split into five segments which include the pull-down menu bars, the mode icons, the pattern bar, the currently-selected pattern area and the drawing area. The pull-down bars are situated at the top of the screen and consist of four menus – File, Options, Text and Lines. By moving the mouse-controlled cursor to the bar of your choice and pressing the Execute button you are shown a graphic window listing the various commands.

On the far right of the screen are the mode and fill icons, which include the various icons for use in drawing circles, boxes, filling designs. The far left of the screen contains the pattern mode. Numerous patterns are available for your use or, if you prefer, you can design your own by using the pattern design grid. One really pleasant feature is the Zoom facility, which permits you to work on your picture in small areas at a time and helps to give it that professional touch.

I found the utility very easy to use and in no time at all I was drawing pictures. Even I was impressed with it and I am no artist. Overall this package represents everything the amateur and professional artist could require.

A different type of utility but offering similar characteristics is the Grafsales Graphpad 2. The package is complete with graphpad, digitalised pen and software. The first difference noted is that all functions are carried-out on the pad, not on the screen. The overall size of the pad measures 14in. x 9in. but the drawing area is only 8in. x 4.5in. That in no way detracts from the picture reproduced on the screen but as one of the selling points is the ability to trace from the pad, it means that you need small pictures from which to trace.

Simplicity

That is by no means the only function of the package. The ease of use of the pen, even though it resembles a large cigar, enables any age group quickly to master the ability to draw circles, triangles, polygons and ellipses and to produce reasonably good pictures.

To draw a circle is simplicity itself. After moving the pen to the appropriate icon on the pad, you press a button located on the pen, move the pen to where you want the centre of the circle, press the button again, move the pen to the desired radius, once more press the button and your circle is drawn.

Erasing is achieved quickly by selecting the rubber icon, then the size of rubber required, i.e., small for detailed erasing and in varying thicknesses depending on what you want to erase. The use of a pen has slight advantages over the use of a mouse, mainly because you do not need a large working area but the difference is not so great as to deter people from buying a mouse. My only disappointment with the Graphpad was the lack of a Zoom facility. Other than that it is excellent.

The latest utility from CRL Group is called The Image System but that is the only simple thing about it. I am not saying that the package is difficult to use but mainly that it is a very powerful designing utility. All commands are controlled through the keyboard and even though that method is slow at first, using the keyboard permits perfect control of the cursor.

After loading, you are confronted with a large drawing area. The bottom quarter of the screen contains the drawing menu. Most commands are accessed from there. Among the commands are the colour palette, showing 16 blocks of colour which are changeable. That allows you to use all 27 colours. A status window shows what command you are using and a memory meter informs you of memory used.

Other features include a Zoom, so close, precise work can be carried-out; Rotation, which is self-explanatory; there is also the ability to store up to 255 pictures in memory, which can be re-called at any time. One very good use is in the way you can give a shadow relief effect to your pictures, by using the define filters and transparent colours.

Filters

The way in which it is done is simple. Having created your graphic and coloured it, you then change the colours by using the filters. When that is done your graphic will be all blue – or whatever colour you want the background to be – but you still have the original picture stored in memory, so the first thing to do is make transparent the which border on the original. Then load the original on to the top of the shadow graphic, but moved slightly up and to the right, which gives the impression of the shadow relief – and very striking it is, too.

Each is superb in its own right. Each offers almost the same functions, even though they are carried-out in a different manner and with different degrees of sophistication.

AMX Mouse.
Advanced Memory Systems Ltd,
Green Lane, Appleton,
Warrington WA4 5NG.
Tel: 0925 602690.
Price £69.95.

Graphpad.
Grafsales Ltd,
Unit Q2,
Penfold Works,
Imperial Way,
Watford,
Herts WD2 4YY.
Tel: 0923 43942.
Price £65.95.

The Image System,
CRL Group plc,
CRL House, 9 Kings Yard,
Carpenters Road,
London E15 2HD.
Tel: 01-533 2918.
Price £19.95 cass, £24.95 disc.

Imitation is the sincerest form of flattery. If that is true, business computer giant IBM must be feeling very flattered. While its machines continue to sell in vast numbers, far more than its closest rival, a large proportion of sales at the lower end of the market are being lost to smaller companies offering similar machines at greatly-reduced prices. Many of the clone machines are cheap imitations with a far inferior construction but today there are many machines just as good as the IBM machine and many are a good deal better, but cost up to £1,000 less.

Although that is good news for the enthusiastic home user who can now share in the legandary software base of the MS-DOS operating system, it unearths a new set of problems. For those who could afford it, buying an IBM machine was a safe option. You could guarantee full compatibility, long-term support through a local dealer, and had the company reputation for reliability, all of which to some extent justified the price.

With the cheaper clone machines, however, many are imported from overseas or produced by companies unknown in the PC world, so what you gain in saved funds you stand to lose in peace of mind.

There are several definitions of what makes a PC compatible but the most important factor in the non-corporate market is the ability to run IBM software. Three classic tests of compatibility exist – the Microsoft *Flight Simulator*, *Lotus 1-2-3* and the Borland *SideKick*. Those three programs operate in such a way that, should the basic input/output system of a machine differ too greatly from that of IBM, the program will not run.

Many things need to be considered when buying a PC. Although the initial price for a single disc drive unit with 256K may be low, much of the applications software available requires a twin drive and 640K to operate. A good example is Lotus 1-2-3, where much of the data is kept in the computer RAM. Having only 256K would mean that the program would be continually accessing the disc while running. Upgrading a standard machine to that specification can cost up to £300.

Processing speed also needs to be considered. The original IBM PC had a clock speed of slightly less than 3MHz. That is now considered terminally slow and can be tedious when running many of the available software packages. The new standard is 4.77MHz but even that is becoming outdated, with most machines now being able to run at 8MHz. As not all software is compatible at that speed, the machines use the dual-speed 8088/2 processor which can run at both.

Even the compatibility of the keyboard needs to be considered. So well-established is the IBM format that many programs require certain combinations of keys to be struck at once; if the design of the keyboard detracts too much from the standard, that may cause difficulties.

The final consideration relates to the potential for expansion. The IBM PC has a huge desk footprint and needs a large area to be used comfortably. Many companies are now producing smaller machines which occupy far less space but they suffer from the inability to accept full-size expansion cards which carry additions such as interfaces, extra memory and internal modems. The number of free expansion slots should also be considered.

While it has lost sales, IBM is still the most popular choice for small businesses but the cheaper clones are likely to do well in the home market. We compare some of the leading competitors.

Cut-price clones



AZ PC/XT compatible

In the past, the Sussex-based company AZ Computers concentrated on producing PC clones in kit form. A box containing an unassembled jungle of disc drives, cables, RAM chips and circuit boards could be bought for £499, complete with a comprehensive manual telling you how to assemble it. Two hours was quoted as the average time to do so but a competition at the 1985 PC User Show yielded a record time of slightly more than 10 minutes.

To put itself in line with other manufacturers and in an effort to appeal to small businesses lacking the time or necessary skill to assemble a machine, AZ has replaced its range of DIY kit computers in favour of a ready-assembled PC/XT compatible.

Main rivals

At first the price of £399 seems too good to be true but closer inspection of the configuration of the machine makes it easier to understand. First, and for the first-time buyer most important, MS-DOS is not supplied with the machine but has to be bought separately for around £50. Except for one or two programs which use their own operating systems, all PC software requires MS-DOS; without it, a machine is virtually useless. A monitor is not included in the package price but has to be bought separately for £80.

The specification of the AZ PC is fairly standard, with no special features to set it apart from its main rivals. The main unit houses a single 360K disc drive, with provision for a second internal drive or a hard disc. The motherboard has 256K RAM expandable to 640K by inserting extra RAM chips. Once removed, the casing reveals a remarkable amount of free space, necessary to allow room for full-size expansion cards to be used in any of the eight available slots.

Even when the cost of the MS-DOS is taken into consideration, the AZ PC still compares very favourably to machines such as the Tandy 1000EX. It retails for around the same price but is not compatible with standard IBM expansion cards.

In its standard form, however, the machine is best-suited to an office or similar environment where other PCs exist. It would then form the ideal complement to other more powerful machines and would be ideal as a basic terminal in part of a networking system. Until October 3 the machine will be available for a special offer price of £299 with the matching composite monitor reduced to £45.



Bondwell PC 34

Spectrum Group plc is best-known for its large number of peripherals for a wide range of home computers but now the company is attempting to move into the business sector with inexpensive imported PC compatibles from the American company Bondwell.

Few PCs are astounding to look at and the models in the Bondwell range are no exception. Having said that, few people buy a machine on the basis of looks. It is a combination of value, compatibility and expansion capability which form the major considerations when buying such a machine, three features which the Bondwell range satisfies easily.

The company has not attempted to incorporate any new technology but instead has worked from the traditional three-box design of monitor, base unit and keyboard. Such a configuration causes the least difficulty in providing a high level of IBM compatibility, both on the software and hardware side.

Because of the ability of the main unit to accept full-size expansion cards, the machine has a huge desk footprint of 19in. by 16in. excluding the keyboard. Although that seems massive compared to certain other models, it is the standard size for most PC clones.

Robust

The keyboard is based on the standard IBM design, a typing section bordered by a numeric keypad and 10 programmable function keys. Its most striking feature is the size of the return key which, in common with many other PC clones, is no bigger than the other keys on the board; it can seem hopelessly inadequate for those used to other keyboards but after a time it becomes tolerable. At first the keyboard seems poorly-constructed, as if the keys might fall out if it were turned upside down but, in reality it is solid and very responsive.

Value is one area where the Bondwell range of machines really stands out. The standard configuration of the model 34 machine includes a monochrome monitor, multi-function card which features a video output, parallel printer interface and a disc controller. The seven free expansion slots can be filled, either with the three Bondwell cards or the wide range of third-party products available.

The central processor is the classic Intel 8088 as used on the original IBM. It gives a clock speed of 4.77MHz, fast becoming too slow to handle much of today's PC software comfortably. The package also features 256K, expandable to 640K on the motherboard, and two half-height 360K, 5.25in. floppy disc drives.

For an additional £400, model 36 can be purchased. It has only one disc drive but has a 20MB hard disc unit which combines vast storage space with a fast access time.

The machine is aimed at the small area between the home user and the small business. Although not so cheap or so fast as some of its competitors, the Bondwell 34 is an attractive buy because of its high specification and robust construction but as a relative newcomer to the British market, it may lose sales to several of the better-established companies producing their own machines.

Comcen Technology

If the idea of a PC in kit form appeals to you, such a machine is available from Comcen Technology for £499. There is, however, one small snag if you want to take advantage of this special low-price offer – you must be a member of the IBM PC User Group. From the point of view of the home user that may not be such a bad thing. The group undertakes first to keep all its members fully-informed of the latest developments in the PC world with a monthly newsletter and regular meetings and seminars. Second, membership of the group gives access to an extensive library of user-supported and public domain software containing around 4,000 programs.



Contrary to the name, the group welcomes users of all PC compatibles – the Comcen model included, of course. The £499 price includes MS-DOS and either a monochrome or colour graphics card but does not include a monitor. The XT-style motherboard gives eight vacant slots before assembly. One of them is filled immediately by the multi-function card included in the price, which features a disc controller, serial, parallel and games ports and a clock-calendar which issues a request for the current time and date each time the machine is switched on.

For Ian Fraser, chairman of the IBM PC User Group, the decision to choose Comcen PC was easy. "I had been follow-



ing with interest the appearance in the U.K. of low-cost compatibles during the last six months. There were many questions concerning compatibility, reliability, support and, most important, the legality of the ROM BIOS and software.

"I believe Comcen Technology has addressed and will continue to address those matters fully and will stand by and support the equipment it sells. Other suppliers of compatibles may claim lower prices but the equipment here is of the highest quality."

Praise indeed, especially when it originates from the chairman of one of the biggest PC user groups in the country. At present, Comcen does not plan to reduce the price of the machine for the public – for non-members it costs £599 – but if the company attempts to follow the trend of the others, it is certain to be a major competitor for a large share of the market.



Tandy 1000EX

Tandy is something of a dark horse in the computer industry. Although it is the third biggest microcomputer manufacturer in the U.K. and has more than 200 stores throughout the country, since the success of its colour home computer range it has managed to slip from the public eye, while still maintaining its status as the most successful computer retailer in the world. The new range of computers from Tandy is, however, likely to bring renewed recognition.

Aimed at the home, educational and small business market, the Tandy 1000EX is the product of the company's decade of PC manufacturing experience. All PC clone manufacturers have their interpretations of IBM compatibility. For many companies it means running IBM software, taking standard expansion cards and having a similar keyboard layout.

Tandy, however, says that the market at which the 1000EX is aimed requires only the ability to run IBM software, a factor which accounts for the unusual appearance of the machine, and has helped to keep the cost low. The overall package offered by Tandy is very good. The bundled systems/applications software includes a word processor, spreadsheet, database and a simple graphic editor. One year's software support and one hour's introductory training are also available free when a machine is bought.

The 1000EX has departed somewhat from the traditional PC format. Instead of the usual three-box design, the keyboard and central processor unit are built as one. The separate high-resolution display unit, either a 12in. monochrome monitor or a 13in. colour unit, can rest on top of the main unit but a separate monitor stand is available as an optional extra.

The major disadvantage of the sleek, space-saving dimensions of the machine is that they prevent it accepting full-size expansion cards and limit the user to the two produced by Tandy. The first is a RS232, essential for all communications applications, and the second permits the use of a mouse and provides a battery-powered clock/calendar.

Central unit

To insert a card into the 1000EX you first need to buy a Plus Upgrade Adaptor Board for £99.95 which provides a single miserly expansion slot. If you want to use the two cards at the same time, a Memory Plus Expansion Adaptor provides an additional 128K of memory and allows two Plus-style upgrade boards to be used.

The keyboard features 90 full-travel keys divided between a QWERTY typing section, 12 function keys and a numeric pad. The standard configuration of the machine includes one 360K, 5.25in. disc drive built into the right-hand side of the central unit. There is no provision for a second internal drive but an external one may be fitted. That may be either a 360K, 5.25in. drive or a 720K, 3.5in. drive allowing for greater data storage in a more compact form.

Saving grace

An external hard disc will also soon be available. The standard 1000EX carries 256K which is expandable to 640K, using a combination of additional RAM chips and the Memory Plus Expansion Board.

When Tandy announced the new machine, many expected it to be a simple upgrade of the popular 1000 machine. In reality, the 1000EX is a completely new design concept, aimed at a different market and employing the Intel 8088/2 processor, allowing software to be run at the standard 4.77MHz or the faster 7.16MHz.

Overall, the Tandy 1000EX is a well-built, highly-compatible machine which should do well in its intended market. For those who want a low-cost, basic PC clone which they can expand, the 1000EX is an expensive option. Its saving grace is the high level of customer support offered by Tandy, something few other clone manufacturers will be able to match.



Walters PC

In recent months, Walters has kept its machines in the public eye by reducing prices continuously. The company's reputation for reliability and compatibility has always been high but the low prices being charged certainly makes it worth looking at.

The Walters PC can only be described as an average PC clone. It follows the usual three-box design and, from an appearance viewpoint, has little to distinguish it from other clones, or for that matter the original IBM PC. The 8088 processor running at 4.77MHz and the ability to expand the 256K memory to a maximum of 640K on the motherboard are all features found on the majority of PC clones on the market.

Even the price of £599 fails to prompt immediate purchase and it seems positively expensive compared to some other models. It is, however, the fact that the machine is such a standard PC clone which makes it so attractive. In addition to having a high level of software compatibility, the machine has six full-size expansion slots to accept standard IBM cards and has two more short slots for the smaller cards being manufactured for the IBM portable.

Turbo option

For an additional £40, one of the full-size slots can be filled with a turbo board, giving the machine the ability to run at 8MHz or the standard 4.77MHz.

To add a second disc drive and extra RAM to the basic machine to enable it to run many of the commercial programs available would cost an additional £140 plus VAT, increasing the total price to more than £800. That reflects the strength of the Walters reputation in the PC market and the successful sales record shows that many people are prepared to pay more for a well-known name, a theory which IBM has proved beyond doubt.

The keyboard provided with the Walters machine is robustly-constructed and has a positive feel. Other than that, it holds few surprises and annoyingly it features the IBM-style miniature return and shift keys. Even bearing that in mind, the keyboard is still one of the best available.

Although it may seem expensive compared to machines such as the Tandy or Bondwell PCs, the machine has the distinct advantage of combining a high level of hardware and software compatibility with a well-established market into which its competition may find it difficult to break.



Walters Portable PC

Although it is based mostly on the full-size PC machine, the Walters Portable is a far more interesting computer. It combines a monochrome monitor, disc drive and keyboard in a single box which is little bigger than the main unit of the IBM PC. The portable is simply a full-size machine built into a smaller box around a 9in. monitor and, because of that, while one would normally expect a reduction in price, costs more.

Although advertised as portable, the unit weighs 34lb. and is not suitable for moving over greater distances than a few hundred yards – from an office to a car, for example.

Removing the keyboard which forms the base of the machine reveals the front panel which houses the monitor and disc drive. Next to the display brightness control is a key switch, allowing the machine to be disabled when unattended. Despite its size, the display is very easy to read, certainly big enough for most common applications such as word processing or using a spreadsheet. The resolution is good, giving a sharp picture with little distortion.

Although the monitor unit is inside the machine, the cable which connects it to video output is under a side panel and has to be plugged-in each time the machine is used. That may seem like an oversight by Walters but having this configuration gives the user the option of using a biggei monitor or a colour display.



The front panel of the standard machine has plenty of space for adding a second disc drive or hard disc unit and also has the all-too-rare re-set key. That is normally a strong feature of a PC, being useful when the usual method of holding down the control, alt and delete keys fails to work but, on the Walters machine, the button is very sensitive to touch and is located far too close to the door of the disc drive. Inserting a new disc into the machine could all too easily cause an unintentional re-set.

The main circuit board is identical to that fitted into the full-size machine, using the 8088 processor running at 4.77MHz, and offers six free expansion slots, two being used by the internal monitor. Even then, for a machine its size, the potential for expansion is excellent.

The only major complaint is the rather haphazard construction. When you consider that the machine is expected to be moved a great deal, the panels seem surprisingly thin and flimsy. The small fold-away legs on the base of the main unit which are expected to support the entire weight of the machine seem hopelessly inadequate and began to buckle slightly on the machine we tested.

The Walters Portable PC has its faults – what machine does not? – but still stands out as one of the better low-cost PC compatibles available.



ARC World PC

American Research Corporation entered the U.K. to spread the success which it had been enjoying in the States. There, the company had been concentrating on producing full-size, fast, powerful machines but now is to break into the low-cost PC market with a budget

version of its larger machines, the World PC.

Many manufacturers advertise their machines as being portable when only an intense weight training course will provide the average person with sufficient strength to carry one. By calling the World PC transportable rather than portable, ARC has managed to avoid that form of criticism and even to include a fashionable backpack with the computer to assist in moving it.

Compact design

Without doubt, the World PC is one of the most transportable PCs on the market, partially because of its compact design, partially because of high-tech construction, but mainly because it is supplied without a monitor. The matching ARC monochrome monitor can be purchased for £120 but compatible third-party products cost as little as £60, so the World PC is still a value buy.

It is supplied in two parts. The main unit, which houses the central processor, disc drives and circuit board, is rather odd in appearance. To make the machine as portable as possible, ARC decided to reduce the number of expansion slots on the motherboard from eight to five. As a result, the base unit is about half the width of a standard PC but still retains the full height, allowing it to accept full-size expansion cards in any of its available slots.

The keyboard, in common with many low-cost PCs, feels a little cheap but that is probably due to weight-saving construction and the unit is well-laid-out and pleasant to use with 83 standard keys including the numeric keypad and 10 programmable function keys. The large enter and shift keys are a pleasing sight and make the task of becoming accustomed to this keyboard far less difficult than with some others on the market.

The World PC is one of the few machines to include any applications software. In addition to version 3.10 of MS-DOS, the word processing program *PC-Write* is also included. Thus an effective word processing system would complement any existing software library and is an ideal first software package for the first-time buyer.

Comprehensive manual

ARC is best-known for its turbo machines which run as speeds up to 8MHz. The World PC is no exception and uses the 8088/2 processor, allowing it to switch between the standard 4.77MHz and the turbo at the user's will.

The manual supplied with the machine is comprehensive but has been imported direct from the U.S. Therefore it makes several references to items not available on the British version of the machine, namely the 4.5in. monitor unit which fits beneath it to the disc drive and forms a similar unit to the Walters Portable PC.

The monitor is not being sold in the U.K. as it occupies the space which could be used for a second drive or a hard disc. Like many other PC manufacturers, ARC does not believe there is a large market for a single-drive machine, especially as much modern software requires a two-drive configuration.

Ideal machine

The circuit board provides five expansion slots but one is used by the turbo card and another by the monochrome display and printer card. The remaining cards can be swallowed-up quickly when additional drives, graphics and interfaces are added but, at this stage, the World PC would be able to tackle almost any piece of applications software.

Considering its specification, the price of £475 seems laughable, even when the additional cost of a monitor is considered. Complete with the MS-DOS operating system, something missing from many clone machines, and word processing software, the World PC is an ideal machine for business and home users.

COMPARISONS AT A GLANCE

NAME	PRICE	CLOCK SPEED	STANDARD CONFIGURATION	SUPPLIER
AZ PC	£299	4.77MHz	Single disc drive, no monitor MS-DOS version 3.2, 256K	AZ Computers 08926 65606
Bondwell 34	£599	4.77MHz	Twin disc drives, mono monitor 640K RAM, 5 free expansion slots	Spectrum Group plc 0462 37171
Tandy 1000EX	£449	4.77/8MHz	Single disc drive, mono monitor 256K RAM, 1 free expansion slot	Tandy Stores Ltd 0922 477778
Walters PC	£599	4.77MHz	Single disc drive, mono monitor 256K RAM, 5 free expansion slots	Walters International 0494 32751
Walters Portable	£650	4.77MHz	Twin disc drive, integral monitor 256K RAM, 5 free expansion slots	Walters International 0494 32751
ARC	£475	4.77/8MHz	256 RAM, single disc drive No monitor, 3 free expansion slots	ARC (U.K.) Ltd 01-684 4144
Comcen PC	£599	4.77MHz	Supplied as kit. Single disc drive, 256K memory, 5 free expansion slots	Comcen Technology 0792 796000

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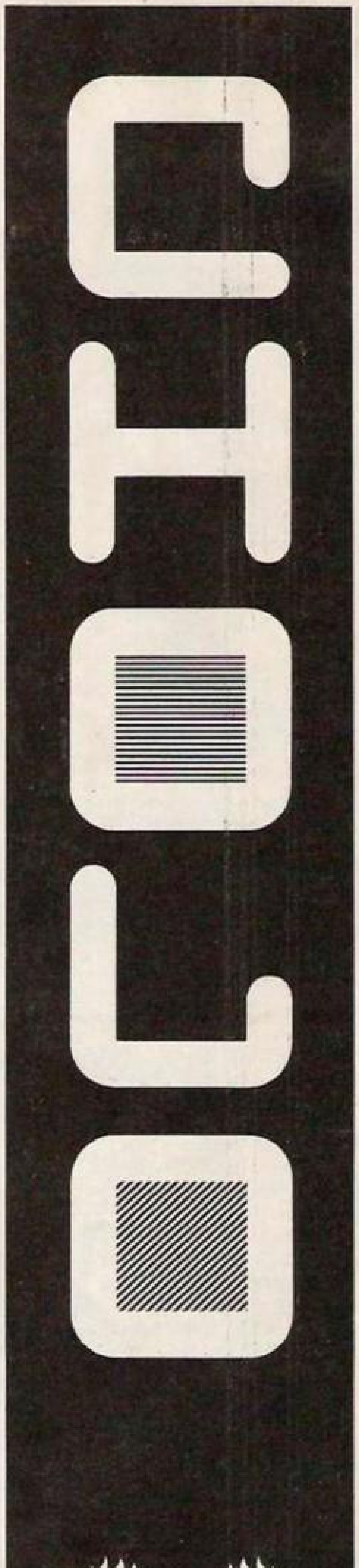
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BLACKSTAR

► *PCW8256* ● *CRL Ltd.* ● *Adventure* ● *Tom Courtney* ● *£14.95*

GRAPHICS
NONE
SOUND
NONE
PLAYABILITY
● ● ● ● ●
VALUE FOR MONEY
● ● ● ● ●
OVERALL
● ● ● ●

Pure text adventures are one area where it was always thought the PCW machine would come into its own. Its large memory, disc drive and big display makes it ideal for dealing with the screeds of text these games often involve. From the time one picks up the inlay, with its lurid artwork to its mystical plotline, there is no doubt that we are in familiar adventure territory full of heroic deeds to be done and monsters to be slain.

Blackstar is the name of a rather forbidding castle. The hero has wakened from a dream to find himself near this great edifice. His quest is to enter and find the power orb and return it to Artemis, who seems to be some kind of big noise around those parts. Being the chivalrous type, the idea of asking her why, if she is such a top dog she cannot do it herself and let you get some sleep never crosses your mind and forward you go.

Possibly it may have something to do with her promise to let you keep any other odd baubles you may find around the place. That, of course, is meat and drink to the average kleptomaniac adventurer.

This is a text adventure in the grand tradition. The experienced adventure player will soon be at home with the kind of problems posed. What of the novice? Adventure games have a reputation as some of the most user-hostile games on the market. Written by an exclusive cache of authors for a small, specialist following, the average member of the public can feel excluded from this cosy little set-up.

On the face of it, this adventure is not very promising. The game makes little attempt to guide the novice. For the first few attempts he will soon find himself lost in a maze-like forest. As any adventurer worth his salt will tell you, he solved that kind of problem before he cut his milk teeth. You must wait until you have gathered a fair number of objects and then leave them lying around to guide you.

Having reached the castle, things improve. You are virtually spoon-fed the first problem and instant death does not lurk at every turn. A few problems later the novice adventurer is becoming confident. They reach the more difficult part in the underground labyrinths.

Players of all levels will be glad of the RAM save facility. Save your position often and, should disaster strike, you can resurrect your man quickly. Despite some pleasant features, it is a game more for the old hand than the novice. Exits are not pointed out and it is very much a question of trial and error. The parser is scarcely sophisticated and the vocabulary is somewhat limited, another fact which can easily lead to frustration.

The game also fails to take advantage of the amount of memory supplied with the PCW and is simply run under CP/M, all of it being resident in memory at the same time.

What does the game offer the connoisseur? The text descriptions are rather terse but are fairly good and conveying some of the atmosphere. Some of the in jokes are amusing. The problems are more a matter of taste. Possibly a little too easy to present the expert with little more than a little lunch-hour relaxation.

FAIRLIGHT

► *PCW8256* ● *The Edge* ● *Arcade* ● *Tom Courtney* ● *£14.95*

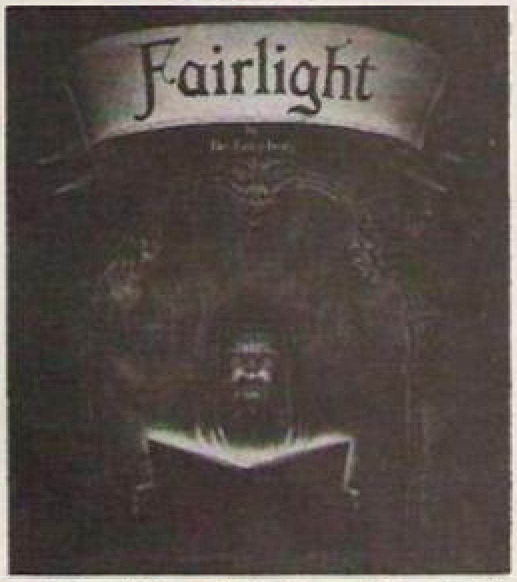
GRAPHICS
● ● ● ● ●
SOUND
● ● ●
PLAYABILITY
● ● ● ●
VALUE FOR MONEY
● ● ● ● ●
OVERALL
● ● ● ●

In case anyone had doubts about the games-playing potential of the PCW since *Batman*, The Edge has released *Fairlight*, an arcade adventure which has yet to find an equal even on the so-called games machines.

The game uses a system which The Edge has christened 3D Worldmaker. Behind that grandoise title lies a real achievement in games design. Whereas most isometric adventures fail to give you that true three-dimensional feel, in Fairlight all entrances and exits to rooms or screens have a height associated with them. That makes mapping a great deal easier – you can tell the likely arrangement of rooms by the number of steps you have to climb as you move around.

Another aspect of the technique is the way the state of a room is stored. Instead of being re-set every time it is entered, the exact position of all objects in a room is stored. Considering there can be a more than a dozen objects in a room at the same time; keeping track of where they are, even how they are stacked on one another, is some feat.

Putting technical bangs and whistles to one side for a moment, what is it like as a game? The object is to rescue the wizard who has been imprisoned by the nasty old king. That is not entirely an act of philanthropy – the wizard has trapped



the intrepid traveller in the castle and will not let him out until he is released.

Fortunately, clues are spread fairly liberally throughout the packaging, the loading screen, and the accompanying short story. Objects scattered round the castle have to be picked up. The first thing to get hold of is the Crown. Five objects can be held at once. Those objects can be picked up, dropped, used or kicked around. The effect of pushing an object varies. A piece of chicken when given a swift kick tends to sail under the nearest table and thus becomes totally inaccessible. Kicking the barrel will barely move it.

Naturally, the old castle is almost chock full of ghouls, wraiths and goblins. Sometimes objects are required to ward them off; at other times, it is a question of getting out the trusty sword and making the Errol Flynn imitations.

Although not a huge place, containing 50 rooms or so, the game is complex but, like all games of this type, fairly fast once you know how. The game has lost little in its conversion to the PCW. The sound effects of the original were minimal and colour most of the time served only to confuse. Obviously making a map is important but difficult, due to the 3D nature of the place. The lack of a save facility is irritating. That is explained by the way the position of all objects is stored. It is also rather slow switching between rooms and little indication is given of which directions it is possible to move. Despite that, it is a fascinating game which features the best graphics yet seen on the PCW.

SAS RAID

► PCW8256 ● CRL Ltd. ● Strategy Game ● Tom Courtney ● £14.95

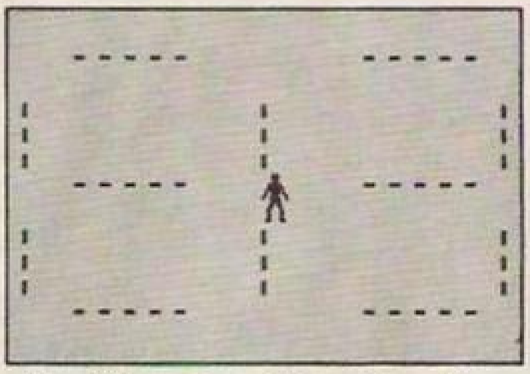
GRAPHICS
●
SOUND
NONE
PLAYABILITY
● ● ● ●
VALUE FOR MONEY
● ● ●
OVERALL
● ● ●

There seems no end to the talents of the PCW for playing games. First adventures, then arcade games, now a little brain-teasing strategy is coming your way courtesy of CRL. A strategy game can be loosely-defined as an adventure game without all the magic, monsters and leather-bound machismo. In strategy games it is you against the computer, usually trying to organise your resources in the most efficient manner.

The scenario is that the enemy – we are not told who, but I am sure you can make a shrewd guess – has stolen the plans to your base. Fortunately, they have decided to rest for an hour or so, presumably to celebrate the birthday of some obscure hero of the revolution. That gives you, bravest of the brave, swiftest of the swift and so on, the opportunity you need to break into the enemy castle, steal the plans and get out again, pausing only to create as much mayhem as possible.

Should you be caught or be too slow, the fiends will open the plans and thus discover the whereabouts of your base and deliver a swift and fatal blow.

The game is played on an eight-by-eight grid. The player can see the location he is on and the eight adjacent ones. After two attempts, the radio and map can be found – two essential aids



with which one would have thought no SAS man worth his salt would have set off. Those pieces of equipment allow you to detect enemy patrols and see the numbers on the grid, without which you will not get far.

The enemy patrols? The number of them depends on the level of difficulty selected. Obviously while their friends celebrated the glorious revolution of May 5 or whenever, they got on with the serious business of roughing-up armed desperados. The player is told on which grid points the patrols are. The patrols move only when you do, so by working-out to which grid point you are about to move, it is a fairly simple business to decide it that might involve you in unpleasantness with the local heavy mob.

While trudging round the grid, the player finds various pieces of equipment. Uniforms or pistols allow you to escape from the patrols; ropes, compasses, dinghies and torches are handy when it comes to cracking the castle. It will virtually be a question of trial and error to discover which thing in which location will get you into the central castle stronghold.

There, safe from the marauding patrols, it is you against the clock as you attempt to grab the plans and run. While not a classic of its times, it is a pleasant little game which should appeal to people who perhaps find that dexterity and timing is not their forte and that endless jokes about Orcs and fairy princesses tend to pall after an hour or two. It may do little to further the legend of the lads from Hereford but it is another interesting addition to the burgeoning Joyce games library.

PROSPELL

► PCW 8256 ● Arnor ● Utility ● Dan McGrath ● £29.95

One of many criticisms of Locoscript is the failure to provide a spell checker or word count. With *Prospell*, the first spell checker designed specifically to work in conjunction with Locoscript, both those facilities are provided. Prospell is on one disc which is not bootable with the main program on one side and the dictionary on the other.

To use Prospell you must first boot CP/M and then enter the Prospell main menu. That provides a top-level menu giving various options. Those options allow you to catalogue any Locoscript group, Spellcheck a text file, and various associated utilities. Also included with Prospell is a two-pass spell checker, which first list all the mistakes, then passes through them again for editing purposes.

Once you have started to check a file you are prompted to insert the text disc and the dictionary disc and Prospell will then start moving through the file. When an error, or an unrecognised word, is found, you are given a new series of options. At that stage you can Store the word in the dictionary, Ignore the word, Change the spelling of a word, Look up the correct spelling, or View the word in context.

Of those, it is the Look-up options



which is the most important. It allows Prospell to search through its dictionary for any word which it thinks you might have been trying to spell, but which you eithert mis-typed, or spelt incorrectly. It will then prompt you either for a correction or to continue. Using the dictionary, Prospell was surprisingly good at correcting mis-spelt words, even relatively unusual ones.

Once you have corrected all the words in your document, Prospell tells you how many words the file contained and creates a new file with all the changes included.

Having used Prospell for a time, you find that soon you have built in the correct spelling of a variety of words your work requires and it is that function which makes Prospell so powerful.

For users of Locoscript, or any of the other word processors for the 8256 and 8512, who intend to write long documents and need their spelling checked, or a non-emotional proof reader, Prospell is essential. The only criticism is the speed of operation from disc but that can be avoided easily using a RAM disc.

Write to: Your Letters,
Your Computer,
79-80 Petty France,
London, SW1H 9ED.
Tel: 01-222 9090

The MSX factor

When will you seriously recognise the existence of MSX computers? For example, in your excellent article about Gremlin Graphics, you make a passing mention of the company's plans to convert several of its games to C16 and MSX formats.

You then state that the C16 sold more than 50,000 units at Christmas without even mentioning that Toshiba alone sold more than 70,000 MSX machines in the same period and that total MSX sales topped the 100,000 mark.

Even when a game is reviewed which is available for the MSX format, this fact is not mentioned. My Toshiba is not the first computer which I have owned, though is it most certainly the best. It is, however, frustrating to have an excellent computer virtually ignored by so many magazines.

K. Neil,
Lincolnshire.

Editor's reply: The percentage of MSX coverage in our magazine reflects the number of users we feel read our magazine. Having said this, however, we will be featuring a full review of the new MSX 2 machine when it is released and from now will ensure that all available formats for games are mentioned.

Intent on Nintendo

As a regular reader of *Your Computer*, I was very excited about the Nintendo Consul mentioned in the August issue. By now I must have re-read the article many times but I still want to learn more about it. When will it be available in the U.K. and what software titles will be available; also is it possible to import a machine from overseas?

Matthew Tazzyman,
Cowling.

Editor's reply: The response to our feature on the Nintendo Consul has been staggering. Many people, ourselves included, are keen to discover more about the machine and we will publish full details as soon as they are available.

There are many games available for the Nintendo in its native country of Japan. As yet, no company has announced plans to import the Consul but to use one in this country would first involve buying a U.S. standard television set to allow for the difference in scanning speeds. Such a set would also require a mains adaptor to cope with the differences in current.

Larger characters than Locoscript

I am employed by the MSC on a project to introduce computers to physically-disabled adults in a Leonard Cheshire Home. The computer which the MSC has supplied for the purpose is an Amstrad PCW8256. I appreciate that it is not an obvious choice for this application and I have two problems which are seriously affecting the success of the project:

The size of the characters used in Locoscript. Is there any word processing package available for the PCW8256 which can produce larger type size?

Can you recommend any software of a non-business nature which could be of interest?

S. Barta,
Wiltshire.

Editor's reply: Locoscript, in common with most word processing packages, can product double-width characters on paper but such effects are not shown on the screen. If the size you require is bigger still, you have no option but to abandon word processing and use a graphics signwriting package. They allow you to produce very large characters indeed – big enough to be used for labels or posters.

Alternatively, using a lightpen and graphics software will allow you to produce large characters on the screen as well as in print. Full details of those and many other products can be found in our sister publication, Putting Your Amstrad To Work, *which also contaisn information on non-business software for the PCW.*

We called this magazine *Your Computer* precisely because we welcome your views, programs, hints and even your criticisms of machines and software in general.

Letters can be hand-written but if you want to submit a program, a listing would be of great assistance to us. Please indicate on what machine the program runs and enclose a loaded version on cassette or disc.

We regret that we are unable to return any submissions sent without stamped addressed envelopes.

North-east repairs

I read with interest the article, Putting your computer back on the road, in the September issue of *Your Computer*. I was, however, disappointed to see that you did not have a company representing the north-east and surmised that it could only be because you were not aware of the services we provide in this area.

Coniston Computers Ltd provides a full repair service for most home and business micros. Our charges are based on the parts used and the average time is three days.

David Simpson,
Coniston Computers Ltd.,
Durham.

Editor's reply: The feature you mentioned was by no means intended to cover all areas of the country but only to give an idea of the range of services available, so that, if someone needed a repair, they would have a better idea of how much it would cost and how long it would take.

MAN LOGIC — By NEIL BRADLEY



The Computing Science Course at Thames Polytechnic is geared towards the needs of the industry.

Tales from the river bank

With unemployment at a high level it is comforting to discover that many of the institutions involved in education are attempting to prepare their students better to compete for the few jobs available.

Thames Polytechnic is one such institution and a good example of this form of teaching can be found in the School of Computing and Information Technology. Its styles and methods owe much to the industrial expertise of its staff, many of whom have a good deal of experience in many areas of the industry.

Founded in 1890 with the aid of private capital from well-wishers in the Woolwich area, Thames Polytechnic was set up to help young people acquire the necessary technical qualifications which local many employers demanded. The college, then known as Woolwich Polytechnic, concentrated at first on fairly low-level subjects with heavy technical bias but as the demand for education grew, University of London degree courses became available and research work was also undertaken.

Sandwich course

Today, Thames Polytechnic teaches a wide range of subjects to its 5,000 full and part-time students. It still stands on the site of the original house where the institution was founded nearly 100 years ago and many of the original buildings are still in use. The initial ideal of providing the necessary skills needed in a business and industrial environment persists and practical application of a subject is a major part of the course curriculum.

In one part of their course, students studying computing science are split into teams which are then given scenarios for imaginary firms. Each student is allocated an individual identity in the firm, such as the chief programmer or systems analyst and the team is then taken through the design and implementation of a system.

The scenario is based on an available system which the Polytechnic acquired as a result of its links with industry and consultancies; having a working example available allows the lecturers to indicate students' mistakes and point them on the correct path so that they reach the required solution.

The role-playing also extends to the lecturers. Pam Morton, a course tutor in the School of Computing and Information Technology, explains: "The staff play the roles of project managers, which gives the students the opportunity to practise their communications skills for senior management in an industrial environment. They are not able to walk up to us with a question as they would in a sixth form college; instead they must make an appointment or write a proper memo."

Those regulations, however, apply only to matters relating to coursework; any personal problems which the students might have are given top priority.

Many assume incorrectly that the role-playing does not appear until late in the course but it is one of the first assignments for new students. In addition to providing them with the communication skills they will need in industry, it also provides them with more information about the type of jobs which await them.

It is there that many will find exciting challenges to a job never considered previously and adjust their options accordingly. Although to some they may seem revolutionary, even egotistical, those teaching methods have given the computing science department at Thames the lowest student dropout figures in the country and few of its graduates have difficulty finding employment on completing their courses.

While reasons for the success of the Polytechnic are many, a major contributory factor must be the structure of the department. Its staff is from many backgrounds; some have been systems analysts or consultants; others were involved in software engineering; while others have backgrounds in telecommunications. That combination of experience is important because combining the skills of computing and telecommunications is, after all, what information technology is about.

Requirements

Morton feels that the course title of Computing Science deters many prospective students, especially those with arts qualifications. "The subjects are, to a certain degree, irrelevant provided that they are solid academic qualifications", she says.

"Many universities place A level mathematics as a prime requirement when recruiting students; that is often necessary as the courses are mathematically-orientated as opposed to the industrial bias at Thames.

Although the coursework aims the students towards industry, it does not inhibit their interests in other areas and many go to work in the public sector or research. Having a wide range of subjects at O level is also very important. An in-house survey of students studying the computing science course at Thames showed that of those who had achieved first class degrees, half had no previous computing experience but all had a number of O levels covering a wide range of subjects.

For those who fail to reach the required standard at A level, a HND course also exists. Many mature students – in legal terms those over 21 – favour the course as the two years of study represent a lesser commitment than the four years of the degree course. Many, however, accept the option to transfer to the degree course at the end of the first year.

As the initial parts of both courses are similar in nature, only a short bridging course in the summer is necessary to take them to the necessary level to join the second year of the degree course. That also gives Thames the distinction of being one of the few polytechnics to have a second year bigger than the first. Students are given the opportunity to switch courses if only their tutors feel that they have the ability to do well on the degree course; many of them do and the competition between students is very keen.

The department is also keen to expand the part-time courses. There are now more than 300 students studying computing science and information technology alone.

Male dominated

Although no qualifications are necessary, it is possible to obtain a fully-recognised degree in about seven years. Thames is the only place in London offering such a course and many of the part-time students travel long distances to study there.

As with most industries at present, computing is male-dominated and that is reflected in the proportion of women students studying the course, a matter of much concern for Morton. "In 1980, the number reached a peak at 25 percent. Thereafter it has dropped consistently to its present level of 16 percent" she says.



The main tape library. Other data is held on disc.

Shopping for a job

We look at computing careers within a supermarket environment.

Everybody seems to be doing it – using computers, that is. For a paranoid few who are terrified at the prospect of an electronic world that may seem a bad thing but for those seeking careers in the computer industry it can only be good news.

Although the use of computers is spreading fast and many thousands of pounds are being spent developing new systems, often little evidence of change is seen. The large supermarket chains are a prime example; even though their total spending on research and development of computing technology runs to many millions of pounds, the casual customer buying weekend groceries would be hard-pressed to spot the difference.

Tesco is one of Britain's best-known supermarket chains and is also the biggest multiple food retailer in the U.K. Much of its success is a result of its massive investment in data processing technology. Since 1964 when its first computer division was established at Cheshunt with an ICT 1300 computer, its investment is in excess of £30 million, with further expenditure planned in the future.

Computers have many uses in a supermarket environment. In addition to administration and payroll, they are used for financial modelling, accounting, re-ordering stock and controlling distribution. CAD packages are also used in designing new stores. One of the most exciting projects being developed deals with electronic point-of-sale shopping. With this system, computers record each item purchased and re-order stock automatically from the company warehouses.

The computing division at Tesco is one of the biggest central departments in the company, employing more than 400 staff. They are split between two locations. The head office at Cheshunt houses the company's latest IBM mainframe computer. It can handle 28 million instructions each second and has a storage capacity of 208,000 million characters.

Richard Parsons is director of the computing division. "One of the most important of the division's tasks is to ensure that software and hardware give the performance expected of them and to do that, every aspect of the users' needs must be thoroughly examined and understood," he explains.

Good liaison

"That is why good liaison and working relationships are so essential. Computer people know computers and retail people know retailing. So we must always bring the two together to find the best way of dealing with anything where the computer has an application in the business."

Staff for the computer division are recruited at several levels. Data control clerks can enter at 16 with O levels. If they work well, they have the opportunity to apply for any in-house vacancies which occur and can thus move into the operations department.

Trainee computer operators require A levels. They carry-out vital systems support work for the entire company.

Operators also have the opportunity to apply for in-house vacancies and move up the careers ladder. Most of the company's systems programmers are recruited direct from the operations department.

As with most modern companies, graduates are given the best opportunities to progress. The training course at Tesco is one of the best in the country and there is never a shortage of potential applicants. The recruitment department visits a large number of universities towards the end of each academic year, in search of prospective staff. Promising students are inteviewed and made to take an aptitude test.

It is interesting to note that today more and more companies are looking for people with business skill combined with computing talent. The days when the best hi-tech programmers gets the best jobs are numbered, Tesco is careful to ensure that its recruits have an interest in the business of the company as a whole, in addition to developing their programming skills.

Tesco recruits only eight graduates each year. Those who do well in the aptitude tests go to an assessment centre where they are given a series of problem-solving exercises in a group situation. That tests their ability to work as part of a team, something which will be of great importance should they be successful.

When selection is complete, they undergo an intensive three-month training course which gives them a solid grounding in the working of the company and introduces them to a fourth-generation language. The content of the course is changed regularly to keep it in tune with the latest needs of the company.

On completing the course, the graduates are formed into a team of trainee analyist-programmers and study a one-year course in systems analysis before being promoted to analyst-programmer level. Up to that point, most of the original recruits are kept together but they then move to their respective specialist areas.

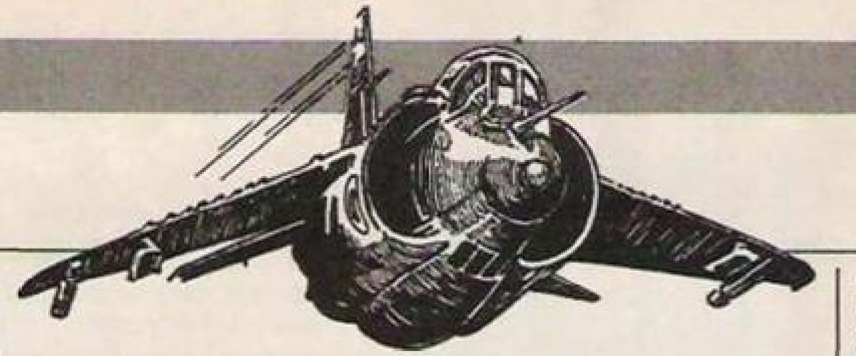
Some will go into research and development of new systems, others may become involved in supporting existing systems. Depending on which route they take, they may need to attend several of the 200 courses which Tesco runs for its computing staff which will provide them with the knowledge they need to carry-out the allotted tasks.

Most other large supermarket chains have made a huge investment in technology and they will have similar patterns of recruitment. Tesco, however, is undoubtedly one of the most advanced in combining information technology in the supermarket environment.

• *We wish to thank Tesco Stores Ltd for its help in producing this article.*

A view of the machine room for System 36.





RAFPCA – The Sky High Computer Club

Anthony 'Biggles' Thompson investigates the RAF Computer Association

Where there is a will, there is a way; similarly, where there is a computer more often than not there is a computer club. Until now our clubs feature has concentrated on clubs set up by members of the public but many other groups exist, each with their own computer enthusiasts and many with their own clubs.

The Royal Air Force employs more than 100,000 staff at home and overseas and it is not surprising that some of them have more than a passing interest in computers. As with most other organisations, the RAF was becoming increasingly computerised and, as the influence spread slowly through the organisation, it was thought that many of the staff should be given the opportunity to become computer literate.

As a result, the education centre at each station was provided with a BBC microcomputer and tutorial software. Those who wished were then able to educate themselves in their spare time. That stimulated an already-growing interest in computers in the RAF and, in 1982, a memo was sent to staff members introducing the idea of a computer club for servicemen and their dependents.

Wide range

A few months later, the Royal Air Force Personal Computer Association was born and today it consists of 55 member clubs with more than 600 members. There is, however, great difficulty in maintaining some clubs. As staff are usually assigned to three-year tours of duty, the most enthusiastic members are often posted elsewhere, leaving the club to fold slowly.

Most of the clubs grew from an interest in the original BBC machine and most meet, after working hours, at station education centres. They discuss problems, swap software and organise competitions and discussion on a range of subjects. Most clubs meet once or twice each month, although individual members may work with station equipment on a more regular basis.

Many clubs also hold their own open days and a few permit members of the public to visit them. In some areas, the standard issue BBC machine is the only computer to which club members have access, though many others have their own machines. They range from ZX-81s to IBM PCs, depending on rank and salary, but the majority of members own BBC machines.

In addition to money provided by taxpayers, the RAF also has access to non-public funds which originate transactions within the organisation. Applications may be made for a grant from those funds which could go towards buying communications equipment or peripherals, on any other equipment desired by club members. As a result, many clubs have expanded their original equipment to cope with the demand for greater computing power as the level of skill among its members increases.

Bulletin board

Each club member pays a yearly subscription to his club and each club, in turn, pays a yearly fee to the association. For that they receive information on how to start and maintain a club, how to apply for grants from non-public funds, and a quarterly magazine, *Computair*, is issued free to all members.

It contains a good deal of information of interest to all but it has its own problems. Wing Commander Archbold, chairman of the Association explains:

"Because of the wide range of machines in use by members, it is difficult to provide information, listings and news for them all." In reality, the magazine content tends towards the BBC machine more than any other but a recent issue also contained features on the Data Protection Act, writing simple games programs and using the Superscript word processing package.

The magazine is developing quickly and it is hoped that in the near future competitions will also form part of its content. Although the association is the ruling body, the clubs are left to their own devices. In addition to producing the magazine, the association also organises a discount scheme for a range of peripherals. They, however, can be ordered only when requested as the wide range of computers in use makes it impracticable to keep a large amount of equipment in stock.

More recently, a bulletin board service was set up and runs on association equipment. It uses the service telephone network – outside working hours – which means that members are not charged. It is regarded as a major development as it is a very efficient method of encouraging inter-club communication, especially when the distances which separate some of the clubs are considerable. At present the service contains the usual chat lines, news and information but it is developing quickly, and more pages will soon be available.

The inexpensive nature of the operation is perhaps the major reason the bulletin board is run on service telephone lines but it is also the major disadvantage. Members can access the service only from an RAF station and only after working hours.

The association is now looking at the possibility of setting-up another board running on British Telecom lines. It would be available on a 24-hr. basis and could also be accessed by members of the public. Although it would be more expensive to run and use, the members of the committee are certain it will be more popular and will encourage the many club members who have computers and modems at home to log on more frequently.

Brief wobble

A good deal of information about the association can be found on the club spot pages of Micronet and that service is also used to encourage inter-club communication. The other major activity organised by the association for the benefit of the clubs is an open day. There are software competitions and demonstrations by members and commercial companies. The last was staged during the Easter holiday at Hendon and played host to a superb presentation of producing music and sound effects on the BBC microcomputer.

The RAFPCA has been running for four years and, after a brief wobble caused by the end of the computer boom, is now stronger than ever. With so many new ideas and projects under way and, of course, the combined computing expertise of club members, many of whom are employed full-time in the RAF computer divisions, a long, prosperous future seems assured.

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»Software Exchange«



The length and complexity of many computer programs makes it impossible to publish them without losing valuable space which could otherwise be devoted to editorial features. To combat this, *Your Computer* has introduced Software Exchange, a new service for readers offering them the opportunity to purchase quality software at bargain prices.

Each tape features two programs, either games or utilities, sent by readers and evaluated fully by our staff before being offered for sale.

If you would like your program considered for this feature, please send it to Software Exchange, *Your Computer*, 79-80 Petty France, London SW1H 9ED. Full instructions should be enclosed and please ensure the tape or disc is marked clearly with your name and address. A fee of £50 per program used is paid after publication and royalties of 25 pence each are paid for each tape more than 100 sold.



SORCERERS' QUEST

Machine: Commodore
Program Type: Text Adventure
Author: Darryn Lavery

In this enjoyable adventure game, you play the part of a fearless knight, sent on a near-impossible task of destroying an evil sorcerer who is rampaging round the country, casting wicked spells, spreading mayhem and leaving a trail of havoc and destruction in his path.

To assist you in doing battle with this master of evil, you must first find three magical objects – a cup, sword and shield. That will give you the necessary powers to cast a spell on the evil wizard and put an end to his reign for all time.

As with most adventures, the inputs are entered in the verb-noun format so to pick up a certain object, say a sword, you would type-in "get sword".

The vocabulary is by no means large compared to many of the other professional adventure games on the market but that minor point in no way detracts from the enjoyment of the adventure; cunning, luck and lateral thinking are major requirements for those who wish to complete the *Sorcerers' Quest*.

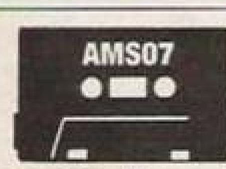
FAST FOOD LASER

Machine: Commodore
Program Type: Shoot-'em-up
Author: Frank Tout

In a lonely fast food cafe, far from civilisation, a sole laser gun is in fierce battle with an assortment of mouth-watering monstrosities. Due to a spillage of radioactive ketchup, normal everyday nibbles have been turned into vicious, blood-thirsty monsters who will stop at nothing, except their own destruction, to free themselves from the cafe and take over the world.

You control a laser base near the cafe where the accident occurred and only you can save earth from imminent destruction. Thirteen waves of kamakazi hamburgers and vigilante hot dogs fling themselves desperately at your station in their bid for freedom. To assist you with this seemingly impossible task, the laser can fire in any direction with an unlimited supply of bullets. You can also decide how long each attack wave will last and have five levels of difficulty from which to choose.

Only your skill and courage as a laser base operator stand between the civilised world and a pickled gherkin for Prime Minister.



AMSTRAD UTILITIES

Machine: Amstrad CPC
Program Type: Utility
Author: Michael Mangion

This useful program adds 18 resident system extensions to Amstrad Basic. While many such programs add commands which are combinations of Basic commands, the RSXs in this program can be achieved only through machine code and are aimed mainly at those with disc drives.

The commands given are all useful and include many standard functions like Format, Read and Write commands. They make use of certain routines in the CPC computer disc operating system while the rest of the commands are dedicated to using the second bank of memory on the 6128 model.

The non-disc commands include such functions as SWAP, which can be used to swap the location of the screen RAM between its two possible addresses. It is very useful because it allows one to store a graphics screen in one location and a text screen holding instructions in another. Another command, COPYM, allows the user to copy one section of RAM to another. It is specially useful in animation for copying certain parts of a program. As all the commands used are RSXs. They must be preceded by the bar sign, generated by holding down the shift and @ keys together.

CASTLE

Machine: Amstrad CPC range
Program Type: Arcade Adventure
Author: Nick Ganastois

While certain undesirable citizens would argue that things are not so good now, life was even harder for the average criminal in medieval times. What with the wars, crusades, dragons and damsels in distress, it is difficult enough for anybody to make a decent living, let alone the average petty thief.

As Carl the cat burglar, your task seems simple in theory. Make your way to the deserted castle, steal all the jewellery and then escape to live the rest of your life in luxury. In reality, the route to the castle is littered with an assortment of deadly weapons. On the first screen you are attacked by hordes of copyright symbols. Should you escape the initial waves of vicious onslaughts, mantraps, arrows and an assortment of other nasties await you.

This challenging game requires skill, determination, courage but, above all, plenty of luck as you attempt to leap, duck and dodge your way to the castle. Should you succeed, you will be rewarded with riches beyond your wildest dreams but then of course, you have to return. Although the graphics used in Castle are not particularly outstanding, the game is nonetheless very enjoyable.

SP11

PARACOPTER

Machine: Spectrum
Program Type: Shoot-'em-up
Author: Alistair Webb

In this action-packed game, you are in charge of the last anti-aircraft gun in the country when, suddenly, squadrons of enemy helicopters are sighted on the horizon. Their mission is to destroy your gun and then invade the country, whatever the cost. As the enemy aircraft fly overhead, their troops, armed with high explosives, jump out to begin their deadly mission.

You must shoot the helicopters and paratroopers to prevent them landing. Should four manage to reach the ground on either side of the gun, they climb on to your gun and blow it up. Five points are gained for each helicopter destroyed and two for each parachutist but one point is lost for each bullet fired, so it is important to make every shot count. Luckily, your gun is equipped with two types of bullets; standard ones which move only in straight lines or steerable ones which follow the direction of the gun turret.

Ninety-nine levels of shoot-'em-up action lie between you and the successful defence of your country; only the best will survive.

BALTHAZAR ADVENTURE

Machine: Spectrum
Program Type: Text Adventure
Author: Alex Andrews

Written using the *Quill* adventure creation program, *Balthazar Adventure* is a superb example of how effective the system can be for producing professional-style adventure games. Using a machine code database, Quill interprets the inputs and produces the appropriate responses. All the programmer need do is to key-in the location descriptions and decide how the adventure will run.

In Balthazar Adventure, you play the role of King Balthazar, a kindly monarch who has been thrown into prison and whose treasures have been taken from him and placed under guard in a castle. Your task is to escape and recover your riches. That, however, is not so easy as it seems. There are many problems in your way, some simple, some obscure, some deadly, but all enjoyable. Adventure addicts will appreciate the humorous dialogue, the pleasant surprises and the speed at which responses are given, made possible by the Quill database.

BBC05

PANDOMONIUM

Machine: BBC
Program Type: Arcade Adventure
Author: Peter Scott

Picture yourself in the heart of a strange new world filled with springs, platforms, deadly lasers and teleport stations disguised as telephone boxes. Somewhere in that world, a big, bad nasty lives; it is your mission to destroy him. The only way you can do so is to travel round the 75 screens, collecting the 12 components of a deadly bomb with which to blast the nasty which is, after all, no less than he deserves.

To help you travel round the huge maze of screens it is possible to teleport using the several telephone boxes which are placed conveniently at various intervals. You climb into one, dial a number, and before you can say "Reverse charges" you find yourself in another kiosk. Once the 12 pieces of bomb are in your possession, you must first assemble them and then make your way to the last screen, where you are face to face with the nasty for the final conflict.

This jolly program also features continuous background music, 16 types of animated aliens and a high-score table.

ADDRESS BOOK

Machine: BBC model B
Program Type: Database
Author: Bryan Hobson

If you are one of those people who are not trendy enough to own a Filofax and not rich enough to own a Psion Organiser, this could be the program for you. Address Book for the BBC is the ideal way of keeping in touch with your correspondents. On loading, the program presents a list of options. You can load a file of previously-saved addresses, add new addresses to a file or print-out a list of addresses. One particularly interesting feature allows you to search through your files with a wildcard. Using this, you can, for example, print-out all the addresses beginning with a certain letter or number.

The program also features an edit mode which allows you to delete records from a file or alter an address if somebody has moved. A sample data file showing how the program works is also included at the end of the cassette after the main program and this can be run by using option 1 on the main menu.

A useful program for all those who feel their lives are in need of organisation.



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MICRO MARKET

SIMONE

◆ *Commodore 64*
● *Andrew Gordon*

This interesting memory game employs an unusual graphical twist. Instead of the normal flashing lights and ambiguous bleeps, the computer displays six mouths, each of which sings a different note when its corresponding key is pressed.

The object is to follow a sequence of notes produced at random by the computer. You then have to repeat the sequence, a task which becomes increasingly difficult as time passes. When you



```
0 T-349:DIM X%(999):Z-0:GOSUB2000:GOSUB1000
10 X%(Z)-RND(1)*6+1
20 FORD-OTOZ:ON X%(D) GOSUB 700,750,800,850
,900,950:NEXTD
25 GETJ$:IFJ$<>""THEN25
30 FORD-OTOZ
35 GETA$:Q-VAL(A$):IF Q-0 OR Q>6 THEN35
40 IF Q<>X%(D) THEN 500
50 ONQGOSUB 700,750,800,850,900,950:NEXTD:Z
-Z+1:T-T+10*(Z<25):FORE-OTO99:NEXTE
60 POKES+1,158:POKES+4,17:FORE-OTO9:NEXTE:P
OKES+4,16:FORE-OTO199:NEXTE
70 PRINT"{CYN}{HOME}    SCORE :{C-7}"Z:GOTO1
0
500 PRINT"{HOME}{CYN}    SCORE :"Z:PRINT
510 PRINT:PRINT:PRINT"{GRN}    YOU {RED}FAIL
ED{GRN} BUT SCORED"Z"POINTS"
520 PRINT:PRINT:PRINT"{C-7}    YOU OUGHT TO
HAVE PLAYED NOTE"X%(D):FORE-OTO299:NEXTE
530 ON Q GOSUB 700,750,800,850,900,950:POKE
V+38+Q,10:FORE-OTO99:NEXTE
550 FORE-OTO11:PRINT:NEXTE:INPUT"{C-3}    PR
ESS RETURN TO PLAY.{BLK}";A$:RUN
700 POKE2040,13:POKE1594,32:POKE1634,160:PO
KES,96:POKES+1,08:POKES+4,33
710 FORC-OTOT:NEXTC:POKES+4,32:POKE2040,14:
POKE1594,160:POKE1634,32:RETURN
750 POKE2041,13:POKE1598,32:POKE1638,160:PO
KES,048:POKES+1,11:POKES+4,33
760 FORC-OTOT:NEXTC:POKES+4,32:POKE2041,14:
POKE1598,160:POKE1638,32:RETURN
800 POKE2042,13:POKE1602,32:POKE1642,160:PO
KES,24:POKES+1,14:POKES+4,33
810 FORC-OTOT:NEXTC:POKES+4,32:POKE2042,14:
POKE1602,160:POKE1642,32:RETURN
850 POKE2043,13:POKE1606,32:POKE1646,160:PO
KES,194:POKES+1,16:POKES+4,33
860 FORC-OTOT:NEXTC:POKES+4,32:POKE2043,14:
POKE1606,160:POKE1646,32:RETURN
900 POKE2044,13:POKE1610,32:POKE1650,160:PO
KES,96:POKES+1,22:POKES+4,33
910 FORC-OTOT:NEXTC:POKES+4,32:POKE2044,14:
POKE1610,160:POKE1650,32:RETURN
950 POKE2045,13:POKE1614,32:POKE1654,160:PO
KES,48:POKES+1,28:POKES+4,33
960 FORC-OTOT:NEXTC:POKES+4,32:POKE2045,14:
POKE1614,160:POKE1654,32:RETURN
1000 FORC-832TOC+44:READD:POKEC,D:NEXTC
1010 DATA1,8,,3,156,,7,122,,31,123,128,127,
255,224,49,248,192,28,3,128
1020 DATA14,7,,15,15,,7,158,,7,254,,3,204,,
```

ARCHERY

◆ *Spectrum* ● *Aker Brothers*

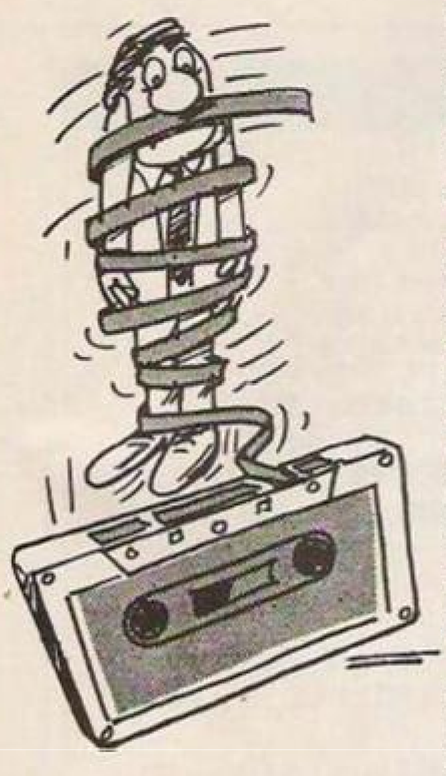
Your skills may never match those of Robin Hood but *Archery* is an enjoyable shoot-'em-up game which involves shooting at assorted moving targets with a bow and arrow. To score a point the centre of each target must be hit, demanding accuracy, skill and plenty of luck. Ten thousand bonus points, a lifetime supply of venison and the hand of Lady Marion are awarded for hitting all 10 targets.

```
   1 REM ******* ARCHERY *******
   2 REM By AKER BROTHERS ,1986
   3 REM ***********************
   4 REM
   5 GO TO 8
   6 BORDER 2: BORDER 3: BORDER
1: BORDER 5: BORDER 6: BORDER 0:
 PAUSE 1: IF INKEY$="" THEN GO T
O 6
   7 RETURN
   8 POKE 23658,8
   9 BORDER 0: PAPER 0: INK 7: C
LS
  10 REM ** SET UP VARIABLES **
  15 LET L=0: LET S=0: LET M=0
GO SUB 8000
  20 GO SUB 130
  30 LET O=-1: LET X=30: LET V=-
1
  35 REM *ACTION AND MOVEMENTS*
  40 FOR B=1 TO 2
  50 GO SUB 80
  60 PRINT AT Y,X; INK I;" AB ":
 BEEP .002,X+X
  65 INK (RND*7)+1: PLOT 128,23:
 DRAW 0,24: PLOT 129,24: DRAW 0,
2: PLOT 129,43: DRAW 0,2
  70 IF INKEY$="0" THEN GO TO 20
0
  75 GO TO 50
  80 LET X=X+V
  90 IF X=O THEN GO SUB 100
  95 RETURN
 100 PRINT AT Y,X;"    ": LET O=
30: LET X=-1: LET V=1: GO SUB 13
```

PROGRAM LISTINGS

make a mistake, the computer will tell you which key you should have pressed and, by turning the mouth pink, the incorrect choice you made. The game also incorporates a continuous score which appears at the top of the screen.

The mouths are produced using sprites and open and close as their respective notes are produced. The overall effect is very pleasing and the game very challenging.



```
3,204,,1,216,,,240,
1030 FORC=877TO894:POKEC,0:NEXTC
1040 FORC=896TOC+32:READD:POKEC,D:NEXTC
1050 DATA1,8,,3,156,,7,122,,31,123,128,127,
255,224,29,87,128,7,254,,3,204,,3
1060 DATA204,,1,216,,,240,
1070 FORC=929TO958:POKEC,0:NEXTC
1200 V=53248:FORC=VTOC+46:READD:POKEC,D:NEX
TC
1210 DATA87,150,119,150,151,150,183,150,215
,150,247,150,,,,,,27,,,,255,8,255,21
1220 DATA121,240,,,255,,,,,,,,,,2,2,2,2,2,2
,,,
1230 FORC=2040TOC+5:POKEC,14:NEXTC
1300 PRINT"{WHT}{CLR}":FORC=1TO12:PRINT:NEX
TC
1310 PRINT TAB(9);:FORC=0TO5:PRINT"{C-C}{C-
V}{C-V} ";:NEXTC
1320 PRINT:PRINTTAB(10):FORC=0TO5:PRINT"{RV
S} {OFF}   ";:NEXTC
1330 PRINT:PRINT:PRINTTAB(10)"{BLU}1   2
3   4   5   6"
1400 S=54272:POKES+24,15:POKES+5,136:POKES+
6,137:RETURN
2000 POKE53280,0:POKE53281,0:POKE53269,0:PR
INT"{CLR}":PRINT:PRINT:PRINT
2005 PRINT"{C-3}         {SH S}{RED}  SIMONE
 {C-3}{SH S}":PRINT
2010 PRINT"{GRN}    THE COMPUTER WILL SING A
 SERIES OF"
2020 PRINT" NOTES WHICH YOU MUST COPY EXACT
LY.":PRINT
2030 PRINT"    BY PRESSING KEYS 1-6 ON THE T
OP ROW"
2040 PRINT" YOU WILL OPERATE THE MOUTHS LAB
ELLED "
2050 PRINT" ONE TO SIX.":PRINT
2060 PRINT"    EACH TIME YOU SUCCESSFULLY CO
MPLETE"
2070 PRINT" A SEQUENCE OF NOTES YOU WILL SC
ORE ONE"
2080 PRINT" POINT. THE NEXT SEQUENCE YOU WI
LL BE"
2090 PRINT" GIVEN WILL BE A COPY OF THE PRE
VIOUS "
2100 PRINT" ONE EXEPT THAT A NOTE WILL HAVE
 BEEN "
2110 PRINT" ADDED TO THE END.":PRINT:PRINT:
PRINT:PRINT
2120 INPUT"{C-3}    PRESS RETURN TO PLAY.{BL
K}";A$:PRINT"{CLR}":RETURN
```

```
0: NEXT B: GO TO 30
 130 LET Y=INT (RND*15): IF Y<4
THEN GO TO 130
 133 IF M=10 THEN CLS : GO TO 40
0
 135 LET M=M+1
 140 LET I=INT (RND*7)+2
 145 RETURN
 200 REM * FIRE BUTTON ACTION *
 205 FOR T=14 TO 3 STEP -1
 210 IF SCREEN$ (T+1,15)<>" " TH
EN GO TO 260
 220 PRINT AT T,15; INK 7;"C": B
EEP .002,T+T: PRINT AT T,15;" "
 230 PRINT AT Y,X; INK I;" AB ":
 BEEP .002,X+X
 240 GO SUB 80
 250 NEXT T
 255 GO TO 60
 265 FOR A=0 TO 5: PRINT AT T+1,
15-1; INK 7; BRIGHT 1;"GOOD": BE
EP .01,A: PRINT AT T+1,15-1;"
": NEXT A
 270 LET S=S+100: LET L=L+1: GO
SUB 9600: GO TO 20
 305 FOR A=50 TO 8 STEP -2: BEEP
 .002,A+3: BEEP .002,A-6: BEEP .
002,A+16: BEEP .002,A-10: BEEP .
001,50: NEXT A
 310 PRINT AT 6,10; INK 6; PAPER
 2;" WELL DONE "
 315 PRINT AT 9,1; INK 5;"YOU SH
OOT ALL THE TEN TARGETS"'"  YOU
 GAIN 10000 BONUS POINTS"
 318 PRINT AT 13,0; INK 4;"FOR Y
OUR SECOND ATTEMPT YOU WILL HAVE
 TO SHOOT 20 MORE TO GAIN
   THE BONUS POINTS"
 320 PRINT AT 20,8; FLASH 1; INK
 4;"PRESS ANY KEY"
 322 FOR A=1 TO 7: BORDER A: BOR
DER 0: PRINT AT 11,11; INK A;"10
000": BEEP .002,PI+A: NEXT A: IF
 INKEY$="" THEN GO TO 322
 325 LET S=S+10000: LET M=-10: L
ET L=-10
 330 BORDER 0: CLS : GO SUB 9500
: GO TO 20
 400 REM ***** END OF GAME *****
 405 PRINT AT 4,10; INK 7; BRIGH
T 1;"WELL DONE"
 410 PRINT AT 7,4; INK 7; PAPER
1;" YOU SCORED ";S;" POINTS "
 420 BEEP .002,10: BEEP .003,-5
 425 PRINT AT 10,6; INK 6;"ANOTH
ER GAME? [Y/N]"
 430 IF INKEY$="Y" THEN CLS : LE
T M=0: LET S=0: LET L=0: GO SUB
9000: GO TO 20
 435 IF INKEY$="N" THEN STOP
 440 BEEP .02,66
 445 PRINT AT 10,6; INK 2;"ANOTH
ER GAME? [Y/N]"
 450 GO TO 405
8000 REM * SET UP UGD GRAPHICS *
8005 FOR C=144 TO 153: FOR A=0 T
O 7: READ N: POKE USR CHR$ C+A,N
: BEEP .001,C-100: NEXT A: NEXT
C
8010 DATA 0,0,6,29,58,0,125,15
8020 DATA 0,0,176,220,174,0,95,2
48
8030 DATA 8,28,28,8,8,8,20,20
8040 DATA 34,34,255,34,34,34,255
,34
8050 DATA 82,130,173,75,10,144,0
```

```
,0
8060 DATA 42,45,85,99,54,20,72,4
2
8070 DATA 0,0,1,1,1,1,3,3
8080 DATA 3,3,7,6,6,14,14,28
8090 DATA 60,126,255,223,206,236
,125,57
8100 DATA 59,63,31,30,14,12,0,0
8900 REM * SET UP TITLE SCREEN *

9000 PRINT AT 4,12; INK 7; BRIGH
T 1;"ARCHERY"
9005 PRINT AT 6,0; INK 7;"YOU TA
KE THE PLACE OF AN ARCHER,"; INK
 6;"     WHO MUST SHOOT TEN TARGE
TS"; INK 5;"         SO YOU CAN C
OLLECT"; INK 4;"       THE 10000
BONUS POINTS"
9010 PRINT AT 11,0; INK 7; BRIGH
T 1;"THE TARGETS ARE MOVING FROM
 ONE SIDE OF THE SCREEN TO THE O
THER      SIDE AND THEN BACK AGAIN
."
9020 PRINT AT 17,2; INK 6; INVER
SE 1;"USE '0' TO FIRE YOUR ARROW
S"
9025 PRINT AT 0,0; INK 2;"ABABAB
ABABABABABABABABABABABABABAB"
9027 PRINT AT 21,0; INK 7; BRIGH
T 1;"CCCCCCCCCCCCCCCCCCCCCCCCCC
CCCCC"
9030 PRINT AT 21,9; FLASH 1; INK
 6; PAPER 2;"PRESS ANY KEY"
9035 PRINT AT 2,4; INK 6; INVERS
E 1;"-AKER BROTHERS PRESENTS-"
9040 PRINT AT 4,7; INK 4;" AB ";
AT 4,20;" AB "
9050 GO SUB 6
9060 CLS
9500 REM ** BACKGROUND SET UP **
9505 PRINT AT 1,0; INK 7; BRIGHT
 1;"DDDDDDDDDDDDDDDDDDDDDDDDDDDD
DDDD"
9510 PRINT AT 2,0; INK 4;"EEEEEE
EEEEEEEEEEEEEEEEEEEEEEEEEE"
9520 PRINT AT 20,0; INK 6;"
";AT
20,0; OVER 1;"EEEEEEEEEEEEEEEEEEE
EEEEEEEEEEEEE"
9530 PRINT AT 21,0; INK 2; BRIGH
T 1;"
"
9535 REM *** SET UP FLOWERS ***
9540 LET E=13: LET K=0
9545 FOR H=1 TO 2
9550 FOR N=1 TO 10
9560 LET A=INT (RND*4)+16
9565 LET B=INT (RND*E)+K
9570 PRINT AT A,B; INK (RND*5)+2
; BRIGHT 1;"F"
9575 NEXT N: LET E=14: LET K=17:
 NEXT H
9580 REM **** SET UP ARCHER ****
9590 PRINT AT 16,15; BRIGHT 0; I
NK 7;"G";AT 17,15;"H";AT 18,15;
INK 2;"I";AT 19,15; INK 7;"J"
9600 REM ** SET SCORE DISPLAY **
9610 PRINT AT 21,1; INK 2; PAPER
 6; BRIGHT 1; INVERSE 1;"SCORE="
;S
9620 IF L=10 THEN CLS : GO TO 30
0
9999 RETURN
```

SCROLL

◆ *Amstrad* ● *D. Harrison*

A demonstration of how to produce smooth-scrolling screens on Amstrad CPC computers. It allows messages to be scrolled using the format !Scroll,x,y,l,@A$ where x and y are the character co-ordinates, l the number of characters in the line, and @A$ is the text string.

```
10 ' ** SCROLL DEMO  by  D.Harrison  **
20 '
30 IF HIMEM>39999 THEN MEMORY 39999
40  IF PEEK(40008)<>&BC THEN MODE 1:LOCATE
5,5:PRINT "Loading SCROLL code":LOAD "!",40
000:CALL 40000
50 GOSUB 1000
60 RESTORE 1090
70 READ a$:FOR x=0 TO 2:MODE x:|SCROLL,1,1+
x*12,80,@a$:NEXT
80 MODE 1:LOCATE 2,15:PEN 3:PRINT yc1$;"
                          "yc1$
90 t=t-1:IF t>0 THEN IF INKEY$="" THEN 90 E
LSE 100
100 READ a$,col1$:FOR x=1 TO 500:NEXT:|SCRO
LL,10,15,21,@a$,@col1$
110 MODE 2:READ a$,b$:a$=a$+yc$+b$
120 PEN 1:INK 1,0:FOR x=1 TO 400:PRINT CHR$
(203);:NEXT:INK 1,24:FOR x=1 TO 1000:NEXT:|
SCROLL,3,3,76,@a$:a$=STRING$(80," "):|SCROL
L,3,3,76,@a$
130 MODE 0:FOR x=1 TO 100:PRINT CHR$(186);:
NEXT:LOCATE 1,15:FOR x=1 TO 100:PRINT CHR$(
186);:NEXT
140 READ a$,col2$:|SCROLL,1,8,20,@a$,@col2$

150 READ a$:|SCROLL,3,22,17,@a$,@a$
160 a$=yc$+yc$+yc$+yc$+yc$+yc$+yc$+yc$+"
 "
170 |SCROLL,4,12,15,@a$,@a$
180 GOTO 60
990 '
1000 SYMBOL 240,132,80,32,32,47,9,9,15
```

```
1010 SYMBOL 241,80,80,80,112,6,5,6,5
1020 SYMBOL 242,7,7,4,4,4,132,7,135
1030 SYMBOL 243,224,32,0,0,15,9,41,239
1040 SYMBOL 244,0,0,0,126,90,66,66,0
1050 SYMBOL 245,0,2,250,138,251,128,128,0
1060 SYMBOL 246,16,187,146,147,154,3,0,0
1070 SYMBOL 249,0,192,94,209,30,220,22,17
1080 yc1$=CHR$(240)+CHR$(241)+CHR$(242)+CHR
$(243)+CHR$(244)+CHR$(245)+CHR$(246)+CHR$(2
49):yc$=yc1$+"   "
1090 DATA "This is a DEMO of the  'SCROLL'
routine for    YOUR  COMPUTER.......
          "
1100 DATA "TEXT   can   be   scrolled   wit
hin  a  line  and  also  in
 C  O  L  O  U  R          -----......
                "
1110 DATA "2

   1  3  1  3  1   3  1   2  3x"
1120 DATA "                In  mode  0  YOU  ca
n  use  all  15  PENS,  By  using  a  'colo
ur  string'  with  the  numbers  '1-9'  an
d  'a-f'  upper  or  LOWER  case.  Also  re
defined  charcters   :-  e.g       "
1130 DATA "            are  allowed  to  be  us
ed ."
1140 DATA "If you make the  'X co-ord' offs
creen >20,40 or 80 then    ' * OFF RIGHT * '
  will be printed and, the routine exits.
 If 'X' or 'L' have values of ZERO then  '
* ZERO VALUE * ' is printed.   This was wr
itten by   David  Harrison.  "
1150 DATA "F                  E           F
      d                    c              d
                     b
 a  9  8  b  7                 6       2
5              2 2                3        b
          8 9 a b  cx"
1160 DATA "this is what happens when you us
e the 'message' STRING   AS   the colour st
ring at the same time :-- pressing any key
brings you back to BASIC. An  'X' or 'x' in
 the colour string  disables  the colour OP
TION   "
1170 SPEED INK 15,15:FOR x=0 TO 15:INK x,x,
x:NEXT:INK 1,24:INK 2,12:INK 15,10,18:BORDE
R 12
1180 RETURN
```

TOUCH TYPE

◆ *Spectrum* ● *S. Langford*

A simple yet immensely useful program, *Touch Type* produces a scrolling string of random characters which must then be typed-in correctly. Only the awkwardness of the Spectrum keyboard reduces the practicability of the program.

```
  10 REM ***TOUCH TYPE***
  80 POKE 23658,8
  90 LET a$="AABCDEFGHIJKLMNOPQR
STUVWXYZ"
 100 LET a$=a$(2 TO )+CHR$ (INT
(RND*26)+65)
 110 PRINT AT 10,0;a$
 120 LET b$=INKEY$
 130 IF b$="" THEN GO TO 120
 140 IF b$<>a$(1) THEN BEEP .1,0
: GO TO 120
 150 BEEP .1,40
 160 IF INKEY$<>"" THEN GO TO 16
0
 170 GO TO 100
```

FUELER

◆ *Commodore 64* ● A. Gordon

As a top space ferryman, your task is to guide a cargo ship through a treacherous asteroid belt. The ship is too small to carry sufficient fuel to complete the journey, so more must be gathered on the way. Fuel canisters float between the minature planets; failure to catch them will result in an untimely end to the game. Smooth scrolling and pleasant background music make *Fueler* a challenging and enjoyable game which will provide many hours of entertainment.

```
0 PRINT"(RED)(CLR)":POKE53281,0:POKE53280,0
:POKE53251,0:GOSUB1000:Y-146
10 SYS49152:GOSUB100:POKEV+22,5:GOSUB100:PO
KEV+22,3:GOSUB100:POKEV+22,1:GOSUB100
20 SC-SC+1:IFRND(1)<.09THENPOKE1983,91
30 IFPEEK(V+2)-0THENPOKEV+3,RND(1)*179+50:I
F(PEEK(V+30)AND3)<>3THEN200
40 GOTO10
100 J-PEEK(56320):Y-Y-2*((J-125))+((J-126))
:POKEV+1,Y
120 IF(PEEK(V+31)AND1)<>0THEN400
130 POKES+4,129:POKES+4,128:RETURN
200 FORC-PEEK(V+1)TO255:FORD-0TO9:NEXTD:POK
EV+1,C:NEXTC
210 POKEV+21,0:PRINT"(CLR)":PRINT:PRINT:PRI
NT:PRINT:PRINT"  YOU RAN OUT OF FUEL !"
220 PRINT"(CYN)  HOWEVER YOU SCORED"SC"POIN
TS"
230 PRINT:PRINT:PRINT:PRINT:PRINT"(BLU)  PR
ESS ANY KEY TO PLAY."
240 GET A$:IFA$-""THEN240
250 RUN
400 POKES+5,11:POKES+6,11
410 POKES+24,15:POKES,128:POKES+4,129:POKES
+4,128:POKE2040,1:FORC-0TO499:NEXTC
420 POKEV+21,0:PRINT"(CLR)":PRINT:PRINT:PRI
NT:PRINT:PRINT"  YOU CRASHED":GOTO220
1000 FOR C-49152TOC+73:READD:SUM-SUM+D:POKE
C,D:NEXTC
1005 DATA 169,102,141,231,7,141,39,4,173,18
,208,201,252,144,249,169,7
1010 DATA 141,22,208,173,2,208,233,4,141,2,
208,162,,189,1,4,157,,4,232,208,247
1020 DATA 189,1,5,157,,5,232,208,247
1030 DATA 189,1,6,157,,6,232,208,247
1040 DATA 189,1,7,157,,7,232,224,231,208,24
5,169,32,141,191,7,96
2000 FORC-832TO894:POKEC,0:NEXTC
2010 FORC-832TOC+23:READD:POKEC,D:NEXTC
2020 DATA ,112,,1,204,,3,194,,7,241,,95,225
,,159,255,,95,255,,1,254,
2030 V-53248:POKEV,40:POKE V+1,146:POKEV+21
,3:POKEV+39,5:POKE 2040,13
2040 FORC-0TO60:POKE1064+RND(1)*920,91:NEXT
C:FORC-1505TOC+5:POKEC,32:NEXTC
2050 FORC-0TO39:POKEC+55296,3:POKE56256+C,3
:NEXTC
2060 FORC-896TOC+26:READD:POKEC,D:NEXTC
2070 DATA127,255,192,128,,32,154,154,32,162
,162,32,178,178,32,162,162,32
2080 DATA161,25,160,128,,32,127,255,192
2090 FORC-923TO958:POKEC,0:NEXTC
2100 POKEV+2,252:POKEV+3,58+RND(1)*163:POKE
V+40,14:POKE 2041,14:X-PEEK(V+31)
3010 S-54272:PRINT"(HOME)  (RED)(SH Q)  REA
DY":GOSUB4000
3020 PRINT"(HOME)  (YEL)(SH Q)  STEADY":GOS
UB4000
3030 PRINT"(HOME)  (GRN)(SH Q)  GO ->  (RE
D)":GOSUB4000
3040 POKES+1,6:POKES+24,5:POKES+5,0:POKES+6
,0:RETURN
4000 POKES+24,15:POKES+1,30:POKES+6,8:POKES
+4,33:POKES+4,32:FORC-0TO399:NEXTC:RETURN
5000 REM >>>            FUELER
5010 REM >>>              BY
                  ANDREW GORDON
```

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What to look for in the next issue of

November issue on sale October 10.

Content subject to revision.

PUTTING YOUR AMSTRAD TO WORK

The magazine for PCW owners.

Focus on financial software

The suppliers' index in this issue lists more software under the accounting and financial headings than any other area of application. In the next issue of Putting Your Amstrad To Work *we shall review a selection of financial software from basic cash recording packages to fully-integrated suites of software which provide a complete solution to the accounting requirements of a small business.*

Menagerie of modems

Having the correct information at your fingertips is the key to success in business. An increasing number of on-line databases and electronic mail messaging systems mean that the businessman equipped with a modem and suitable interface for the PCW computer can often stay ahead of competitors in the information stakes. In the next issue we review some of the modems and communications software available for the PCW8256 and 8256 machines.

Dear Newsagent. **Please reserve me a copy of the November issue of** *Putting Your Amstrad To Work* **— on sale October 10.**

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WIN A COPY OF GAUNTLET, THE LONG-AWAITED ARCADE RELEASE BY U.S. GOLD

Arcade fans will recognise the name *Gauntlet* as one of the most popular games. In one of the most exciting licence deals of all time, U.S. Gold has secured the rights to the computer game. To be released during the run-up to Christmas, it promises to be one of the biggest-selling games of all time.

In this exclusive competition, *Your Computer* will be giving away 10 teeshirts, plus 10 copies of the game, to the first 10 correct entries, and copies of the game to the 10 runners-up.

To win, all you need to do is answer three simple questions and send your answers, together with your chest size and what computer you own, to *Your Computer*, 79-80 Petty France, London SW1H 9ED. The winners and runners-up will be the first 20 correct answers drawn from all those received by the closing date of the competition, October 30, 1986.



QUESTIONS

1. ***How many number one hits has U.S. Gold had so far this year?***
2. ***What major motor racing first recently took place in Birmingham?***
3. ***Name two other arcade licences U.S. Gold has acquired recently?***

COMPETITION RULES

- ★ The winners of the competition will be the persons who send the first all-correct entries drawn from all those received before the closing date of the competition.
- ★ The names of the winners will be announced in the November issue of *Your Computer*.
- ★ All entries must arrive at the *Your Computer* offices by the last working day in October, 1986.
- ★ Each person may enter the competition only once.
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- ★ No correspondence with regard to any aspect of the competition will be entered into.
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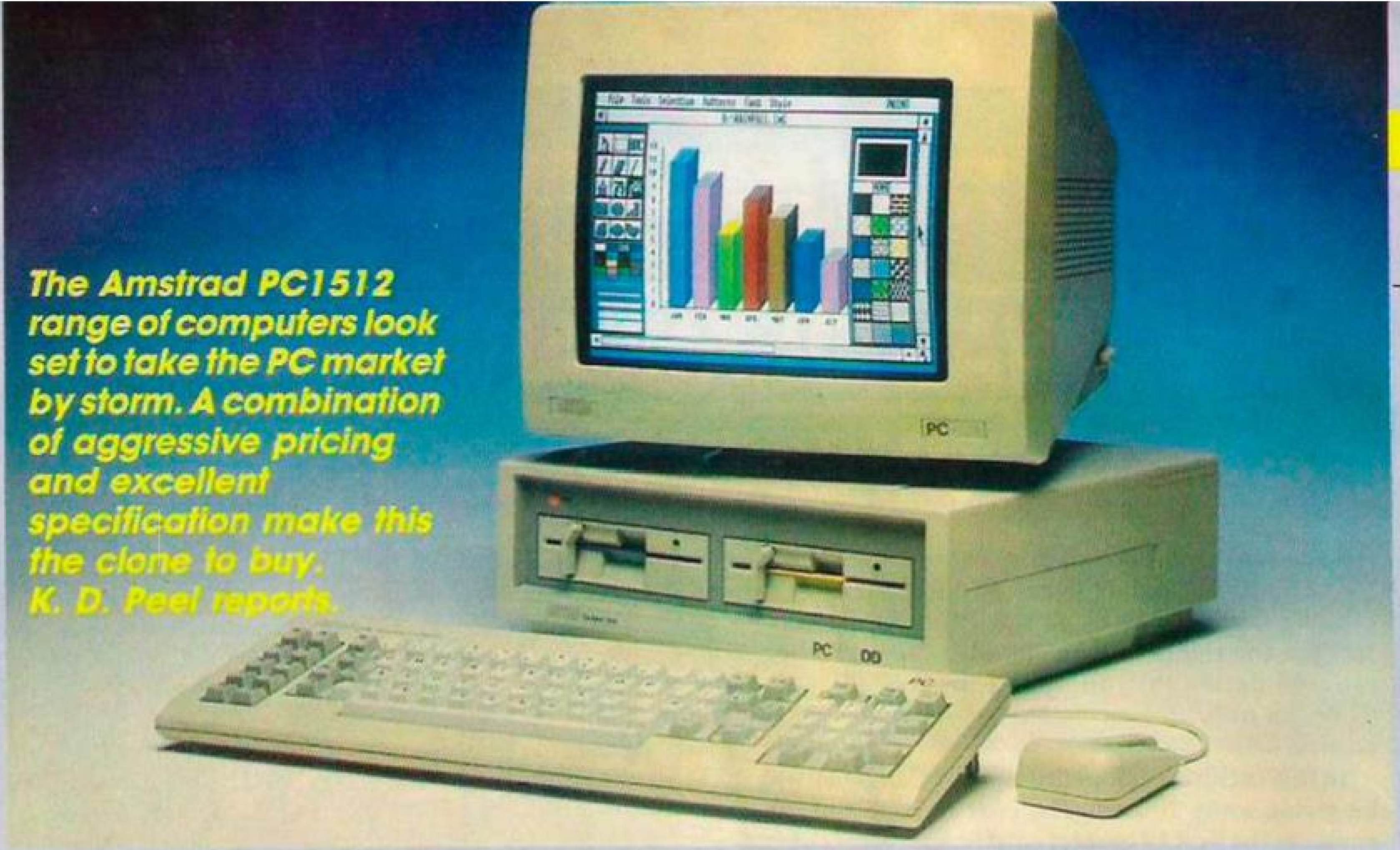
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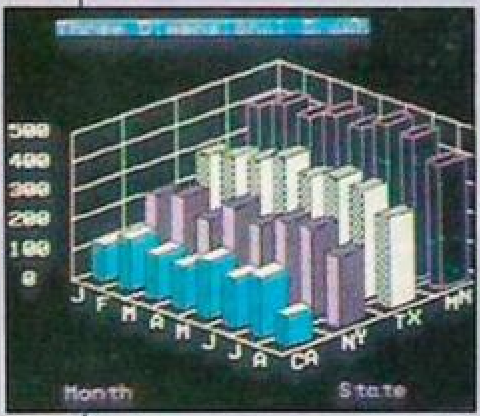
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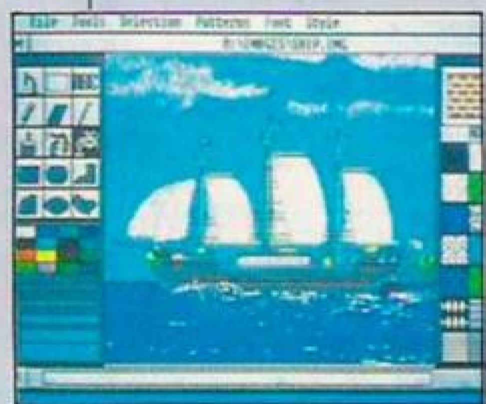


The Amstrad PC1512 range of computers look set to take the PC market by storm. A combination of aggressive pricing and excellent specification make this the clone to buy. K. D. Peel reports.

King of the clones







Two major products aimed at the same market were launched within a week of each other, the Amstrad and Tandy PC clones, after a long static period with little real excitement in the computer industry. Unfortunately the computers will not arrive in the shops for some time yet, although it is rumoured that Dixons flew a batch from Taiwan for demonstration purposes at its London stores.

The cost of the basic Amstrad system is £399 – £459 inc. VAT – for which the purchaser acquires an 8086 Intel microprocessor, 512K of RAM, a 360K disc drive, black and white monitor, mouse and keyboard, a significant saving at present on any comparable alternative clone or the IBM PC.

Hardware

The cream-coloured console contains the main printed circuit board which houses the Intel 8086 processor running at 8MHz, a socket for the 8087 maths co-processor, the memory chips with space for an extra 128K on-board, and three expansion slots for IBM-compatible expansion cards. A recess on top of the console unit accepts the monitor foot which covers the four penlight cells used to power the battery-backed real-time clock.

The rear connectors provide support for a parallel printer, the default list device, a serial RS232C port for an alternative printer for inter-computer communications or an external modem. The video socket provides the RGBI signals for the colour or black and white monitor, the DC IN socket provides the main power source for the console.

The power is augmented by the addition of four pen-light cells, housed on top of the console under the monitor foot; they drive the battery-backed real-time clock and maintain a small number of system variables when the system is switched-off. Mounted on the left-hand side of the console are the mouse and keyboard connection and an additional volume control for the internal speaker of the PC console.

The console also houses the system floppy disc drive, 360K formatted capacity. Other models in the range contain an additional floppy drive on either a 10 or 20MB hard disc drive.

The 85-key keyboard is of average quality and feel. It is divided into three main areas; the centre block of keys takes the standard typewriter format. To the left of centre is a set of function keys and to the right a numeric keypad. The rear of the keyboard houses the joystick connector.

PC colours

The monitor unit also contains the system power supply and tends to restrict the purchaser to his original choice of monitor but I expect some enterprising company will produce a separate power supply allowing alternative RGBI monitors to be used. The black and white monitor displays the 16 colours in various shades of grey, there being no direct equivalent to the IBM PC mono display.

The Amstrad PC handles the standard IBM colour graphic display modes, 40x25 and 80x25 16-colour text. Graphic modes are 320x200 from three four-colour palettes and 640x200 in two colours. The Amstrad also has a special extended display mode which puts the machine in the high-quality games class but whether it can compete with the new Atari blitter chip-driven software for speed is questionable. Even so, 640x200x16

Amstrad PC – colour monitor and double disc drives.

beats 640x200x4 on colours and is extremely close to the Amiga interlaced colour mode of 640x400x16.

Four software discs are supplied with the PC. Disc 1 holds the Microsoft MS-DOS 3.2 operating system; disc 2 contains the GEM start-up disc; disc 3 is the GEM desktop disc which also contains Locomotive Basic II; disc 4 provides the DOS-Plus system disc.

Operating system

The MS-DOS and GEM implementations are fairly standard but the main interest surrounds the Digital Research DOS-Plus operating system and Locomotive Basic II.

DOS-Plus is a mixture of PC-DOS, the IBM operating system, and CP/M-86, the only other alternative operating system of note to that of IBM. The configuration chosen enables the Amstrad PC to run the vast majority of PC-DOS and CP/M-86 software. That is achieved in part through a disc operating system which is able to read and write a number of disc formats – single-sided eight sectors per track 160K; single-sided nine sectors per track 180K; double-sided eight sectors per track 320K; double-sided nine sectors per track 360K. DOS-Plus can even convert from one format to another.

The DOS-plus commands comprise virtually the complete set of native PC-DOS and CP/M-86 commands except for one or two very minor ones.

The user has the choice of handling files and directories either through GEM, using the mouse to manipulate icons and select functions from a series of pull-down menus, or DOS-Plus, using the keyboard to enter commands and arguments into the command line interpreter. The system is very impressive and a delight to use.

Basic II is a much-extended form of structured Basic, with optional line numbers, which operates from within the GEM windows environment of pull-down menus. The facilities are comprehensive and far surpass those of the Basic supplied with the IBM.

There is direct control of I/O, access to GEM graphic facilities, full string-handling and comprehensive access to disc files. A full review of the Basic including speed tests will follow but present indications are that Basic II is fast.

Documentation

The Basic manual seems intent on indicating that if the user wants the advance facilities, he should either buy the Basic technical reference or the Basic user guide, as the documentation provided purports to give an overview. I felt it could have been presented better and no doubt many authors will do that.

A number of smaller software packages are already available to the potential Amstrad PC owner at prices significantly lower than those quoted for IBM PC versions of the products. I admit to being baffled by the philosophy behind supplying cut-down versions of the software. How do you produce a cut-down version for a machine which in its basic form has significantly more memory, much better graphics and is much faster to boot?

Extra memory

Suppliers' margins are extremely low on the basic machine, so perhaps it is churlish to complain, but £100 for the extra disc drive or £400 for a 20MB drive seems excessive. At present, an alternative 30MB IBM expansion slot-compatible hard disc drive is advertised for £350.

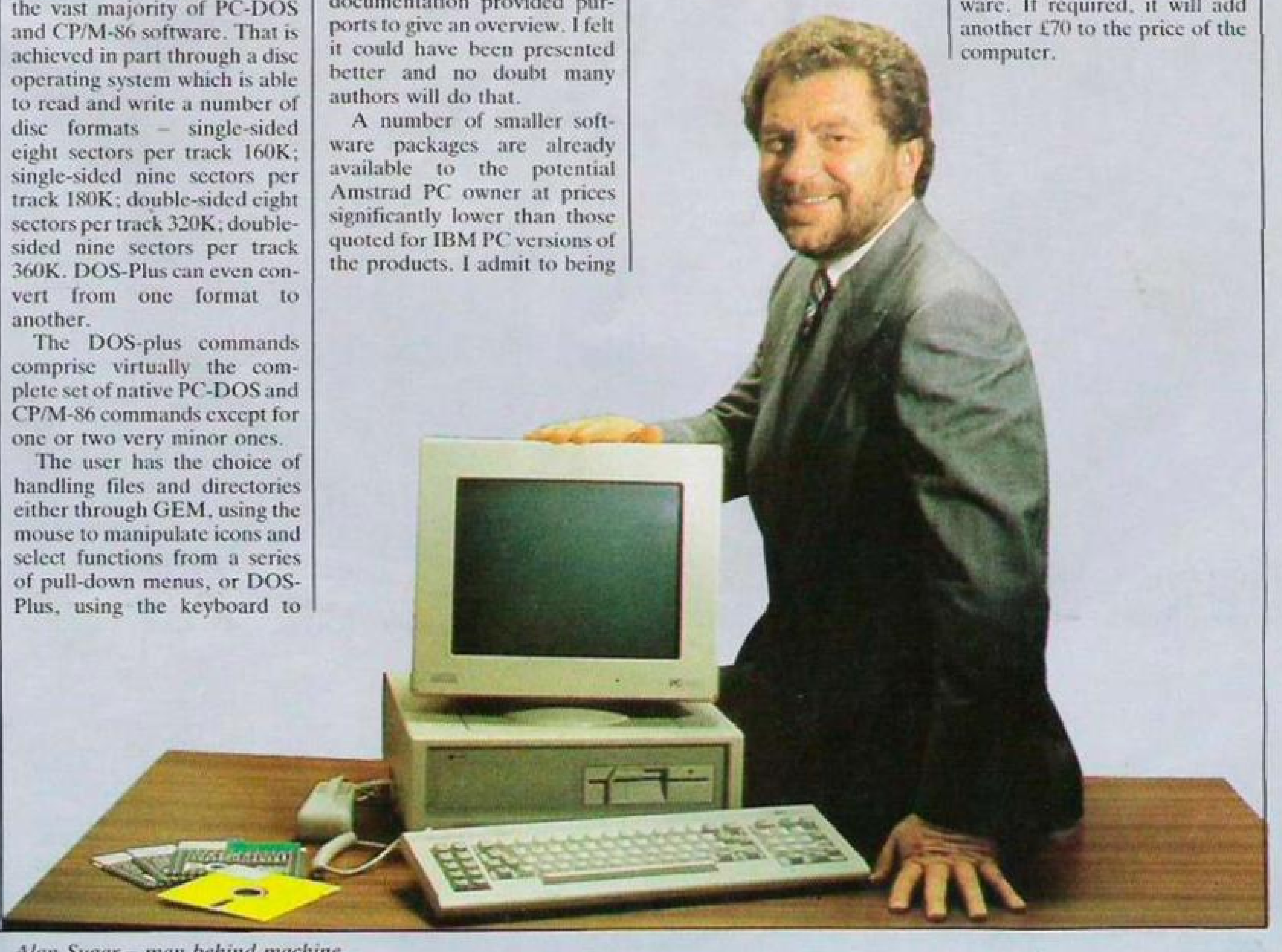
The user is supplied with either a good black and white 80-column text display or an adequate colour monitor. If used for business, I would suggest the black and white monitor, although I would have preferred a display similar to the Atari ST monochrome screen which runs at a faster screen refresh rate and is by far the best low-cost screen for business use.

Virtually all other clones are switchable between 4.7 and 8MHz, which seems an odd thing to do if it is not necessary when you are trying to reduce costs to the bone.

Compatibility with all software is not possible as some applications use the 'naughty' pieces of the IBM ROM. The Amstrad achieves an extremely high degree of compatibility.

The low-cost entry model represents outstanding value, with an exceptional operating system. All the complaints are minor and of no real significance taken in the context of the price of the machine.

It is unusual to find a product aimed at the business market which does not contain a word processor in the bundled software. If required, it will add another £70 to the price of the computer.

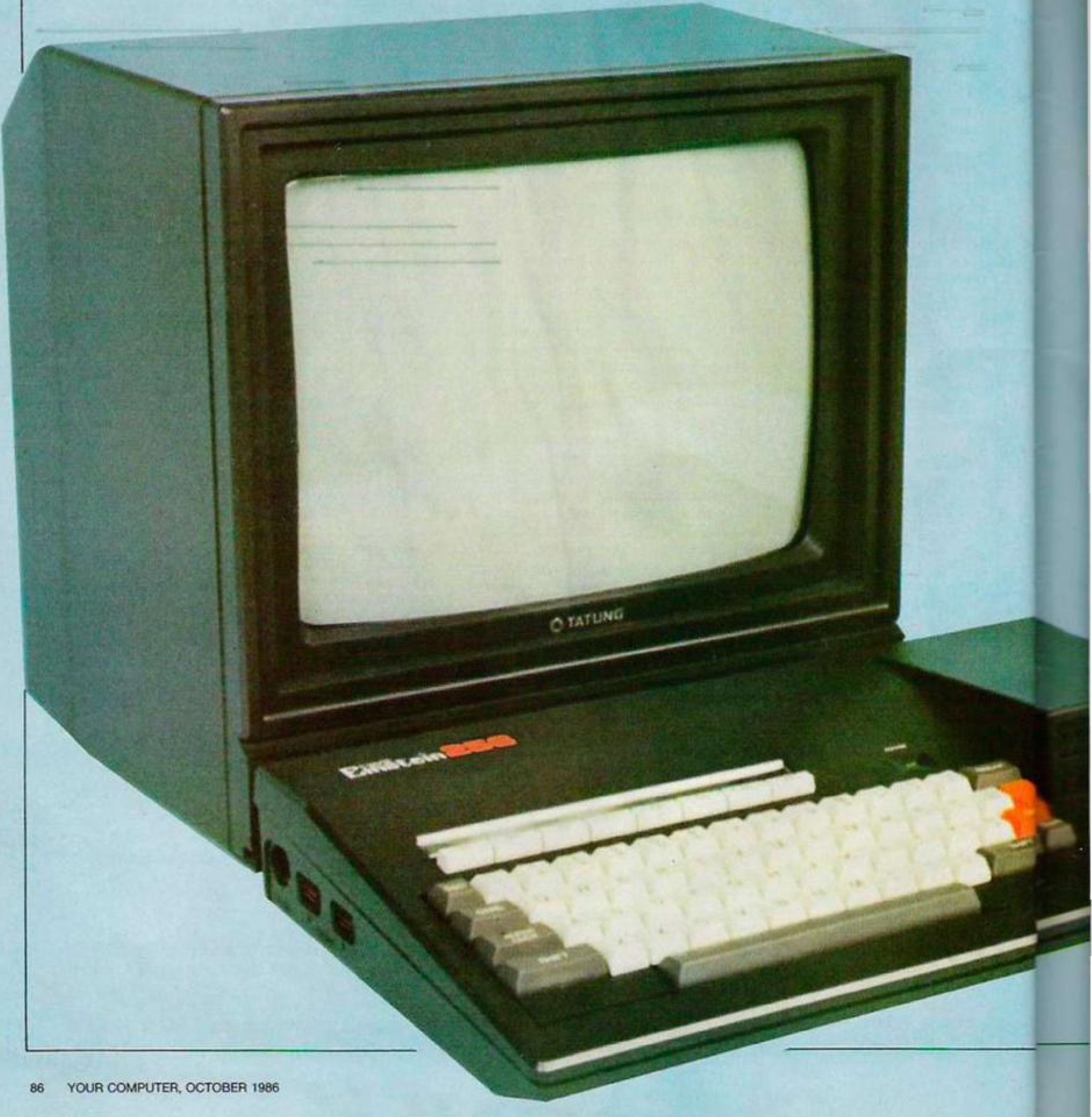


Alan Sugar – man behind machine.

Einstein s

When the original Tatung Einstein computer was launched in August, 1984, the press swiftly descended on its many faults – the over-inflated price, the huge desk footprint, bulky appearance and its claims of CP/M compatibility. Despite the early bad publicity, the machine sold well and established a dedicated group of devoted users who still support the machine.

Now, Tatung has produced the Einstein 256, a completely re-designed micro, competitively-priced and aimed at the small niche market between the home and business computer. The original machine cost £499 plus VAT with a dedicated colour monitor available for an extra £240, a total package price of more than £900. The 256 machine, complete with monitor, costs £399 plus VAT, reflecting not only the high level of competition among manu-



n strikes again

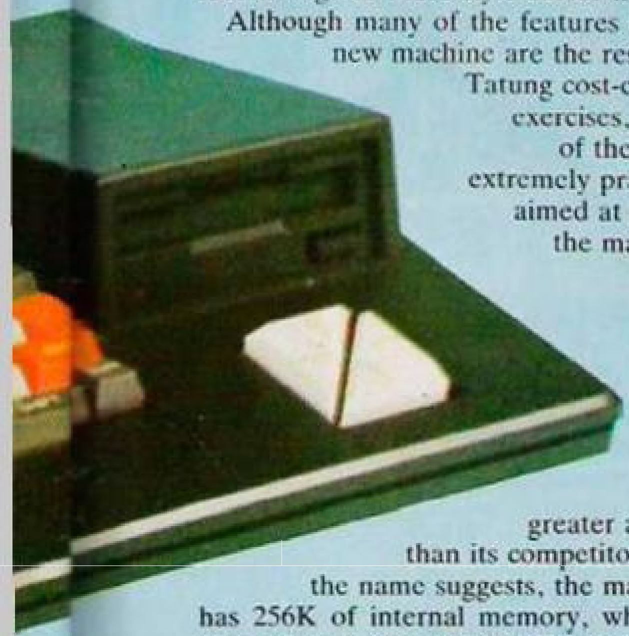
Anthony Thompson reviews the new 256K computer from Tatung.

facturers but improved marketing strategy by Tatung.

Compared to the old machine, the new Einstein is much smaller and more pleasant to look at. The monitor is a result of the many years of experience which Tatung has in the design and manufacture of television sets. It houses the power supply for the computer, a feature which has reduced the size of the main unit drastically and helped keep down the cost but, should you prefer to use your own monitor, a television adapter to interface to another display is available as an optional extra.

The sound, generated originally by a loudspeaker on the main unit, is now also channelled through the monitor, and volume and brightness controls are located on the front panel, hidden under a small protective flap. The sound produced is similar to the Amstrad CPC6128 which, considering they both use the same chip, is scarcely surprising.

The keyboard features 69 keys – 48 alphanumeric, eight function and nine control. A single 3in. disc drive is located to the right of the QWERTY typing section of the keyboard. Unlike the old machine, which had a space where a second internal drive could be fitted, a second drive for the new Einstein would have to be external. The drive is truly dedicated as the machine has no facility to save programs to tape, although they can be loaded via a read-only port on the rear of the computer. Below the drive are four triangular MSX-style cursor keys.



Although many of the features of the new machine are the result of Tatung cost-cutting exercises, some of them are extremely practical aimed at giving the machine greater appeal than its competitors. As the name suggests, the machine has 256K of internal memory, which is allotted to various tasks; 64K is dedicated to the CPU, the well-established Z-80A processor. Even when the DOS has been loaded, a respectable 56K of programming space remains.

Another 16K of ROM is required by the machine operating system which will allow manipulation of memory data and simple disc access. The low-level machine code monitor features copy and back-up utility programs and can also be used for many other functions, such as decimal to hexidecimal conversion and examining blocks of memory. Such features will be of great use to machine code programmers when debugging their work. There is a provision to expand the ROM to 32K.

The final 192K of RAM can be fully-utilised by the video display processor, giving the machine a considerable amount of graphics potential. Seven modes are available for graphics and the two additional text modes allow for a 40- or 80-column display. In most modes, a palette of 16 colours is chosen from a total of 512 available. The machine also allows up to eight sprites on each horizontal row, giving the new Einstein a greater sprite ability than the Commodore 64. At present, however, few software houses have utilised the graphics potential of the machine fully.

The left-hand side of the machine has two joystick ports which, because of their pin configuration, will work only with Atari- or MSX-style joysticks. That lack of compatibility for the most essential game-player's peripheral could be mistaken for an oversight on the part of the manufacturer but there is a method in the apparent madness.

Using a special cable, the two ports can be used to output data to a serial or parallel printer, the default being set by internal DIP switches before the machine is switched on. That allowed Tatung to save on the cost of providing a separate port and is based on the theory that few people would need to use a printer and joystick at the same time.

To the left of the joystick ports is an RS232C serial port. The machine operating system allows the baud rate transmitted and received through that port to be set on a range of values between 75 and 9,600 baud and also permits adjustment of the number of data bits, the parity and the number of stop bits used in a transmission.

On the back of the machine, more I/O devices can be found – a stereo output capable of driving low impedance headphones, a read-only cassette port and, finally, a video, mouse and lightpen interface.

The machine is provided with a master disc containing five arcade games and the Xtal DOS operating system. The games are simple conversions of *Pacman* and *Galaxians* and have been included only as a token gesture to give new users something to do when they switch.

Xtal DOS – pronounced Crystal DOS – is a CP/M-style operating system geared towards beginners, with more understandable error messages and a more logical command structure. The disc also contains the Einstein Basic interpreter, EBasic.

In terms of price, the Einstein 256 is a direct competitor to the colour version of the Amstrad CPC6128. Both are designed to strike a happy medium between the home games machine and the serious business computer, a market where the Amstrad, with its wide range of CP/M titles, has been very successful.

Tatung would not release the sales figures for the old Einstein but claims to have more than 20,000 owners who have registered with its user group.

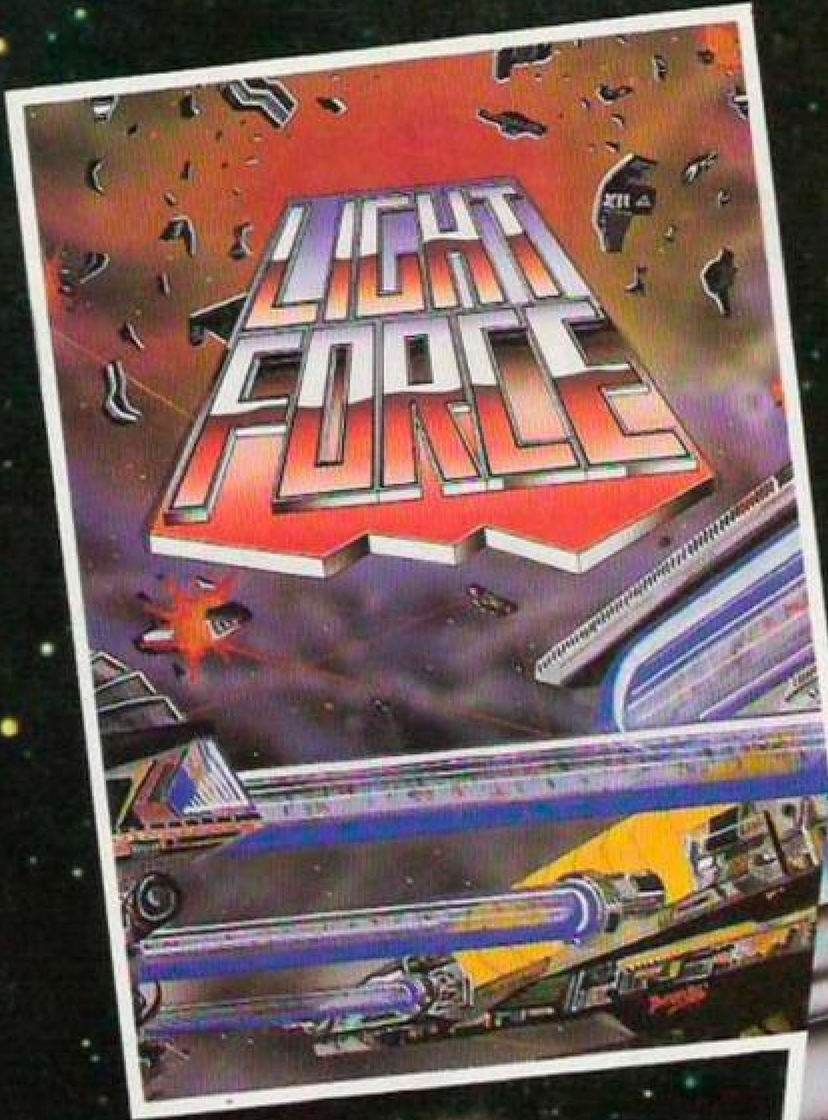
Being compatible with most existing Einstein software gives the machine a base of about 500 titles but many more are promised by way of support for the new machine, with several top titles now being converted. As the Einstein uses the Z-80A processor, the machine can run some to more than 2,500 additional titles.

One development which will increase the software base of the new machine, soon to be released by ACC computers of North Wales, is *Amtat*. This software utility will allow the user to run Amstrad CP/M discs on the Einstein machine. Considering the growing number of titles available for the CPC range of computers, such a development will have a significant effect on the success of the new machine.

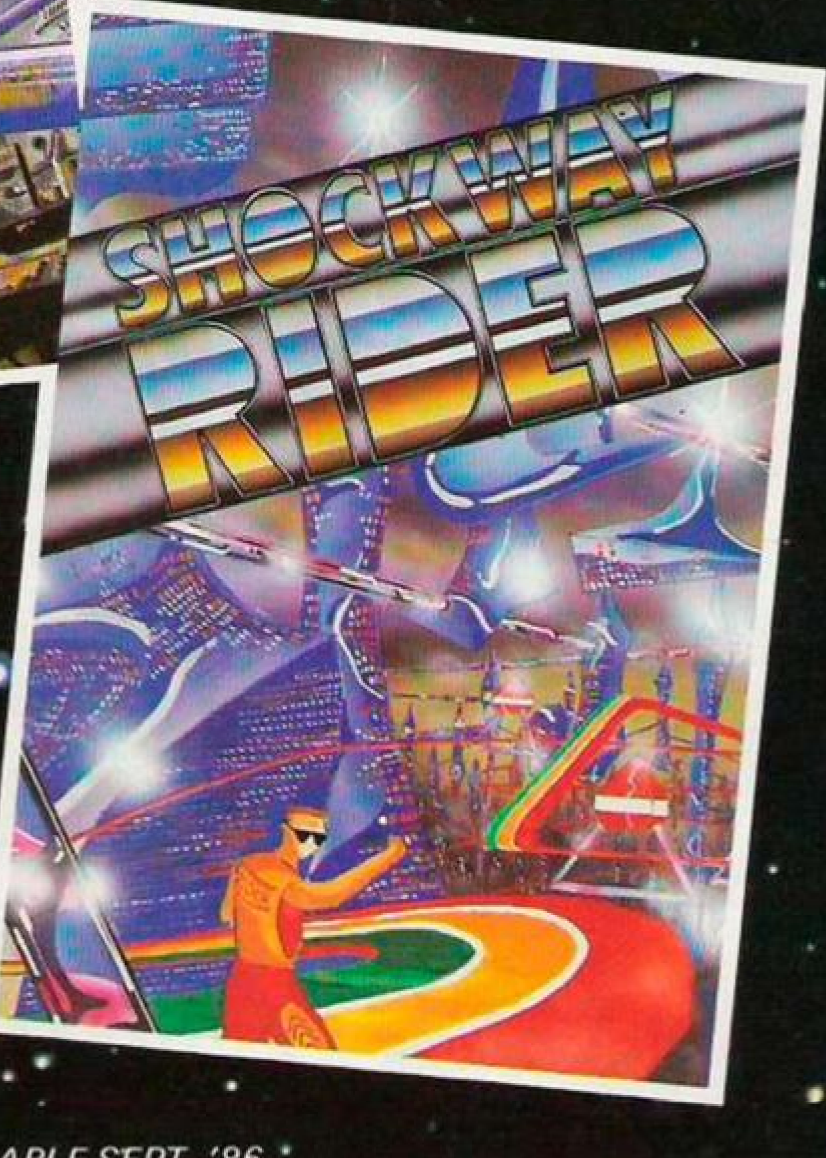
Despite Tatung claims of greater reliability and value, choosing between the Einstein 256 and the Amstrad CPC6128 is not easy. The Amstrad is a well-established machine with a fast-growing software base. The number of titles available for the Einstein, however, is also increasing but it is unlikely that many software houses will create programs specifically for the machine and make good use of its graphics potential or exploit all the available memory fully.

Plenty of support for the machine is promised. A hard disc unit will soon be launched and Konami is converting many of its games but how successful it may be is a matter of conjecture.
of conjecture.

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U.S. GOLD ALL-AMERICAN SUCCESS

In the run-up to Christmas, one company plans to dominate the market completely. If it were anyone else, there might be doubts, but this Birmingham-based company has not yet failed.

When U.S. Gold moves, the world takes notice. Not only has it produced five number one hits in the last six months but it has announced a number of releases which will ensure success well into 1987. Four years ago, when Geoff Brown started Centresoft to import and distribute Atari games from the U.S., he can scarcely have expected the company to grow at such an incredible rate. When U.S. Gold was formed, to take over the import and marketing of American games, it was only a matter of months before many of the premier U.S. software houses had signed.

Instead only of importing and selling the games *per se*, the games were re-packaged, and given an identity which would soon be recognised all



over Europe. It was becoming obvious that U.S. Gold would soon be the biggest software house in the U.K. and between 1982 and 1986 it had moved three times to larger premises, yet still needed more room to expand.

When Holford, a new £28 million industrial estate was built in Birmingham, U.S. Gold saw the potential and took two units, totalling a mammoth 35,000 sq.ft., to house both U.S. Gold and Centresoft. As Geoff Brown comments: "Now at Holford we shall have premises which will allow for our future expansion into manufacturing in every major European country and also to expand our leisure distribution".

One inevitable problem with being the most successful software house in Europe is maintaining the high standard of releases. When U.S. Gold only imported software, it could pick and choose any of the huge amount of high-quality software already available in the U.S. Companies such as Epyx, Microprose and First Star had all produced number one hits, with games which scarcely could fail in the U.K.

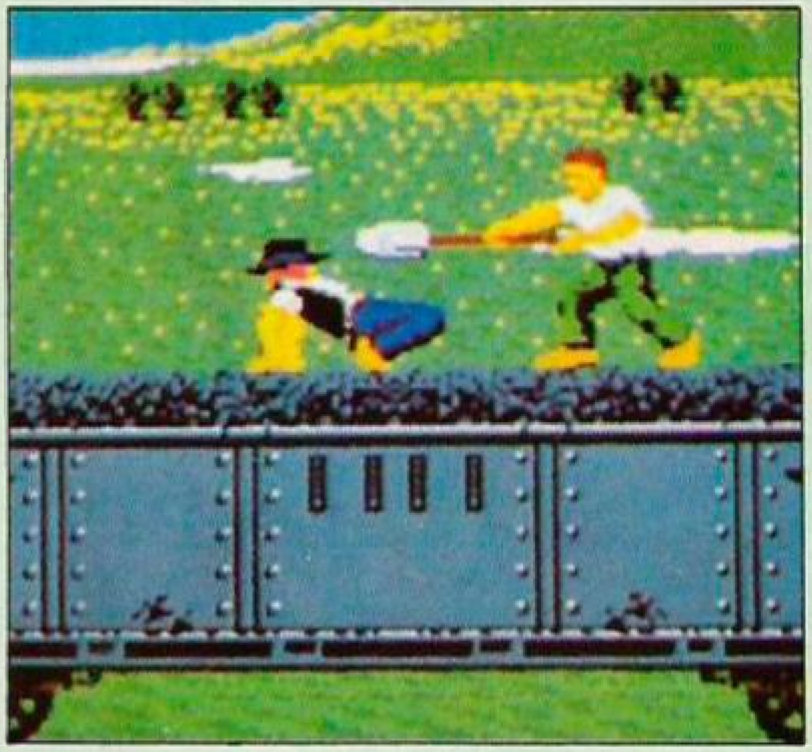
When, after two years, the supply of software slowed, U.S. Gold took control and started to produce its own software in-house. It is only now, however, approaching Christmas 1986, that U.S. Gold has really made an effort to produce top-quality games of its own, as well as importing the best of the rest.

This will undoubtedly be remembered as the Christmas of licences. Almost every software company has managed to license a well-loved product and is busy turning it into a game, ready to woo the public.

Unfortunately for everyone else, U.S. Gold has managed to obtain not only the best arcade deals but also the most popular children's cartoon, *He-Man and the Masters of the Universe*. Although the licence was agreed in 1985, only now has U.S. Gold settled on the form the game should take.

Using Adventuresoft, one of the many software houses in which it has an interest, U.S. Gold plans to produce both an adventure and an arcade game. Following closely the television program storyline, you will be He-Man, defender of the weak and, together with your trusty Battlecat, you must prevent Skeletor capturing your home, Castle Greyskull.

He-Man may well be a popular cartoon character but his popularity counts for no-



thing in computer games terms compared to an Atari arcade game called *Gauntlet*.

In one of the hardest-fought licence deals, U.S. Gold gained the rights in the middle of 1986 and ever since a team of programmers, supplied by Gremlin Graphics, has been getting to grips with the task of reproducing this stunning game.

Originally a four-player game, with teamwork being its essential part, U.S. Gold has had to settle for a two-player version, solely for reasons of playability. With the programmers having moved in-house, where there are not one but two Gauntlet machines for them to study, it is hoped the conversion will retain all the original scenarios.

With other arcade licences, including *Express Raider*, *Breakthru* and *Xevious* all being written and all promising to be hits, the claim of U.S. Gold that it might have 10 more number ones in the next six months does not seem so improbable.

Although known as a company at the forefront of licens-





ing deals, U.S. Gold is not so foolhardy as to forget what made it so successful and companies such as Epyx are still very valued customers. This year, five new Epyx titles will be released, including *World Games*, the fourth in the incredibly successful games series. That, together with *Super Cycle* – reviewed elsewhere in the issue – *Wrestling*, *The Movie Monster Game* and *Hot Wheels*, should keep even the most avid game-player happy.

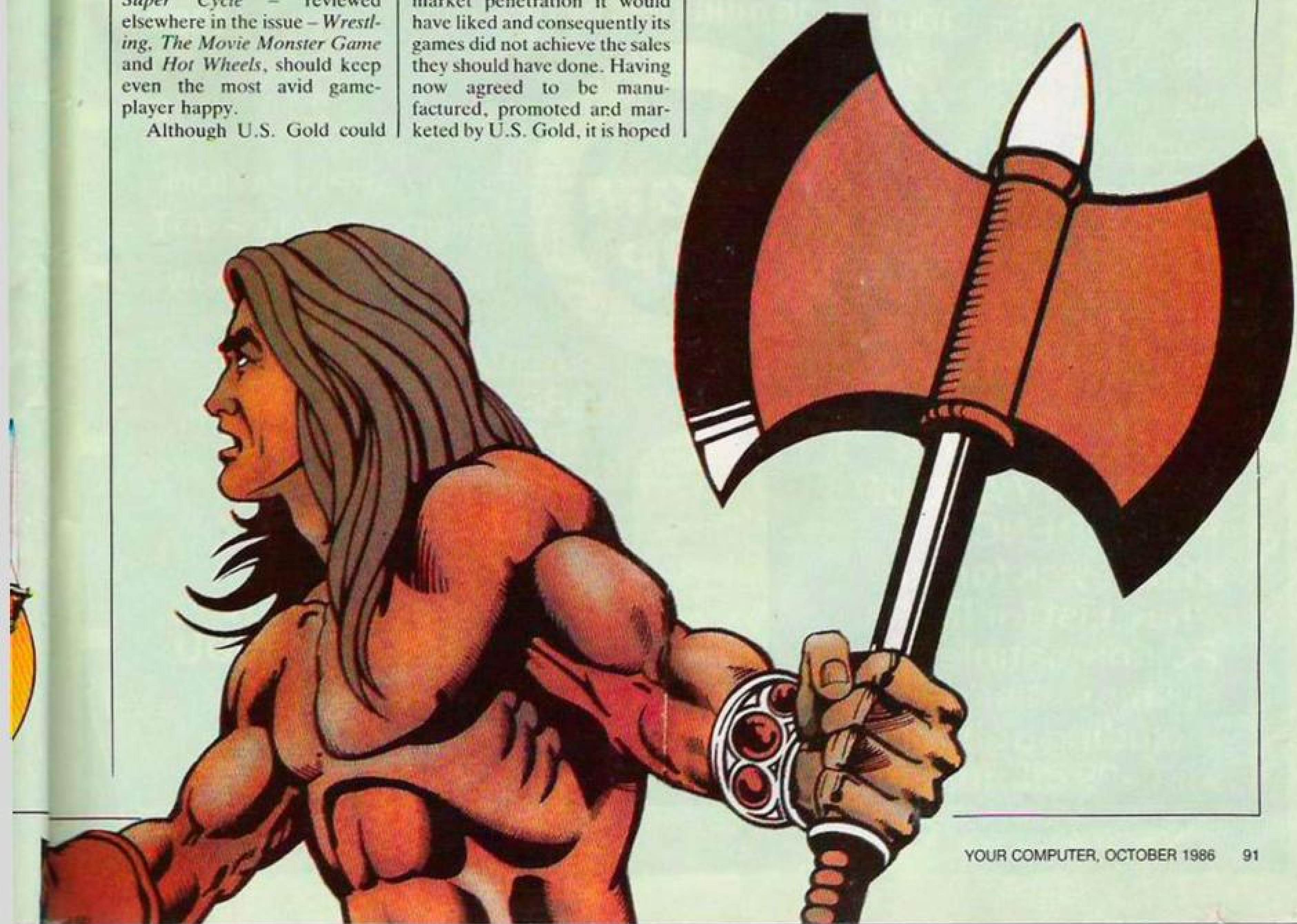
Although U.S. Gold could be accused of making life difficult for the smaller software houses, deals such as the recent one with Vortex show that it also sees potential in a small company environment.

Vortex is a small and relatively well-established software house but, because of its size, could not achieve the market penetration it would have liked and consequently its games did not achieve the sales they should have done. Having now agreed to be manufactured, promoted and marketed by U.S. Gold, it is hoped that Vortex will have more time to produce games of the quality of *Alien Highway*.

The first release from Vortex under the new deal is to be *Revolution*. Thankfully nothing to do with the film of the same name, it uses spectacular three-dimensional animation techniques to give a more realistic feel to a bouncing rollerball.

The software market will be very full of high-quality software this Christmas. Gremlin and Ocean both have a number of high-profile releases. For U.S. Gold, it is all a matter of quality. If its arcade conversions live up to the original games, it really will be a Christmas to remember.





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SummaGraphics Mouse	95.00
Microsoft Mouse	143.00

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Bernoulli Box 20+20mb	3030.00
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Fitting upgrade Hard Disks	15.00

Printers Dot Matrix

Brother M1109	137mcl	25/100cps	175.00
Brother M1409	187mcl	45/180cps	295.00
Brother M1509	232mcl	45/180cps	380.00
Brother TwinWriter 5	203mcl	40/160cps	975.00
Brother 2024L	272mcl	96/160cps	895.00
Canon A50 (PW 1080)	80mcl	40/170cps	285.00
Canon A55 (PW 1156)	136mcl	40/170cps	349.00
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Epson FX85	160mcl	32/160cps	325.00
Epson FX105	272mcl	32/160cps	420.00
Epson EX800 opt Colour	160mcl	50/300cps	399.00
Epson EX1000	210mcl	50/300cps	499.00
Epson LQ800		60/180cps	470.00
Epson LQ1000		60/180cps	595.00
IBM Proprinter		40/200cps	363.00
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NEC P5		88/264cps	799.00
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NEC P7	272mcl	77/216cps	485.00
Oki Microline 84p	231mcl	50/200cps	629.00
Oki Microline 182p	137mcl	60/120cps	230.00
OTC OT700		350/700cps	1750.00
Panasonic KP 1091		24/120cps	245.00
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Terminals

Qume QVT101	ASCII	294.00
Qume QVT101+	ASCII	340.00
Qume QVT103	ANSI	505.00
Qume QVT202	ANSI	518.00

Software

Word Processing

Displaywrite 3	308
Easywriter 2	218
Mailmerge	35
Multimate Advantage v3.6	295
Multimate v3.31	214
Samna III v3.0	355
Samna +	435
Spellcheck	35
Superwriter	144
Word Perfect v4.1	270
Word v3.0	280
Wordcraft	336
Wordstar Professional	218
Wordstar	60
Wordstar 2000 R2	265
Writing Assistant	79

Financial Planning Integrated

Framework II	345
Open Access	290
Smart Full Suite v3.0	388
Symphony	357
Javelin	380
Lotus 123	247
Multiplan v2.0	169
Supercalc 2/3	43/60
Supercalc 4	245
The Twin (123 Clone)	110

Information Management/Accounts

Cardbox Plus	244
Datamaster	440
dBase II	270
dBase III plus	373
dBase III Compiler	550
Clipper (dBase III Compiler)	440
dUtil III Plus	79
Delta 4	340
Filing Assistant	93
Multisoft	390
Paradox	430
Pegasus	175
RBase 5000	270
Reflex	66
Sage Accountant	149
Sage Accountant Plus	199
Sage Bookkeeper	99
Sage Payroll	99
Smart Datamanager	290
Teamwork v2.0	305

Project Planning

Harvard Total Project Manager	299
Pertmaster 1000/2500	450/599
Project	260
Superproject Plus	344

Graphics

Autocad 2 + Extn 1+2+3	2150
Autocad 2 base	300
Chart	184
Domino	365
Drawing Assistant	93
Energraphics	205
Execuvision	205
Gem Draw/Graph	99/155
Gem Wordchart	89
Graphing Assistant	93
Graphwriter Basic	195

Utilities & Games

Crosstalk XVII	110
Flight Simulator	55
Gem Collection	94
Gem Desktop	47
Norton Utilities	55
Sidekick (NCP)	55
Top View	115
Windows	75
1DIR	79

Languages & Operating Systems

Basic Compiler	179
Cobol Compiler	383
Fortran Compiler	220
Macro Assembler	112
Pascal Compiler	203
PC Dos V3.2	70
Personal Cobol	199
Professional Cobol	1399
Professional Fortran	425

Amstrad PC1512 Software

Sidekick	26
Reflex	60
Sage Retrieve (Database)	99
Chitchat Software	99
PC Planner	99
PC Write	99
Deskset	69

Compsoft (budget)

One Up	174
Book Worker	43
Delta 4	87
Delta Graph	61
Domino	87

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All prices excluding VAT and DELIVERY. OCT. 'A'

WORLDWIDE COMPUTERS PLC

NEXT MONTH

Highlights of our November issue

Contents subject to late revision

PROGRAMMING THE EXPERT WAY

David Jones, programmer of *Knight Tyme* and *Spellbound*, presents a Spectrum programming utility to help *Your Computer* readers create their own programs.

DESK-TOP PUBLISHING

Packages which allow text and graphics to be combined to produce professional-looking newsletters and reports are available for a number of computers. We look at some of the best available products.

GETTING MORE FROM YOUR PRINTER

In part two of this new series, our experts demonstrate the use of dot-addressable graphics. Such techniques are the key to the production of high-quality graphics dumps.

PC SOFTWARE REVIEWS

The launch of the Amstrad PC1512 with its £399 price tag has led to a dramatic reduction in the cost of many leading PC software titles. Next month we review a selection of those high-specification applications packages.

PLUS

Part two of the Autumn Gold competition with a pot of gold worth £1,000 as the first prize.

NEWS ● REVIEWS ● HINTS & TIPS ● CLUBS ● SOFTWARE GUIDES

November issue on sale October 27, 1986

DIARY

HAMPSHIRE COMPUTER FAIR OCTOBER 30-31

The Hampshire Computer Fair, now in its fourth year, will again be held at Southampton Guildhall. More than half the available space has been sold and the organisers expect to attract a full complement of exhibiting companies from all aspects of office technology.

ATARI COMPUTER SHOW NOVEMBER 28-30

Atari Corporation will hold its second national U.K. show in London. That is a direct result of the success of the first show, which attracted more than 15,000 visitors, 5,000 more than were expected. New programs and add-ons for the ST series and 8-bit range from both sides of the Atlantic will be launched and there will be opportunities to question the leading U.K. experts in the field of Atari computers.

AMSTRAD COMPUTER SHOW OCTOBER 3-5

Another Amstrad show will be held at London's Novotel, Hammersmith. Approximately 85 exhibitors will give displays and demonstrations of all the latest hardware, software and peripherals for the Amstrad range of computers.

ELECTRON & BBC MICRO USER SHOW NOVEMBER 7-9

See the latest state-of-the-art technology for BBC and Electron computers. Acorn will be demonstrating its latest computers, including the M19 PC clone and the new BBC Master computer. More than 17,000 visitors are expected at the New Horticultural Hall, London.



ATARI ST

Power Without The Price!

520ST PACKAGES

The 520ST-M keyboard costs only £346.96 (+VAT=£399) and includes an RF modulator and cable, allowing you to connect it to an ordinary domestic TV set. The keyboard is supplied with 512K RAM, a mouse and a free set of 3½" disks containing applications software. For a limited period from August 11th 1986, we have some special packs offering combinations of the 520ST-M keyboard with a ½ Mbyte SF354 Atari disk drive and an Atari monitor (either the Mono SM124, or Colour CM36512). These packages offer up to £200 extra discount on a system. If purchased from Silica, they also come with our free 'ST STARTER KIT'. All of the pack prices shown in the chart include VAT.

UPGRADE TO 1024K RAM

We are pleased to be able to offer a 1Mbyte upgrade on the standard 520ST keyboard to increase the memory from 512K to a massive 1024K. It has a full 1 year warranty and is available from Silica at an additional retail price of only £86.96 (+VAT=£100). Any of the five packs can be upgraded to 1Mbyte for only £100. The 1Mbyte ST offers a low price alternative to the 1040, but also gives you the benefit of an RF modulator (not normally fitted on the 1040).

£100 DISCOUNT 1 DISK DRIVE	ALL PACK PRICES INCLUDE VAT	**PACK 1** Keyboard £399 Disk Drive £149 *Normal Price* £548 *Discount* £100 **Pack Price £448**
£150 DISCOUNT 2 DISK DRIVES + MONITOR	**PACK 2** (MONO) Keyboard £399 Disk Drive £149 Disk Drive £149 Mono Monitor £149 *Normal Price* £846 *Discount* £150 **Pack Price £696**	**PACK 3** (COLOUR) Keyboard £399 Disk Drive £149 Disk Drive £149 Colour Monitor £299 *Normal Price* £996 *Discount* £150 **Pack Price £846**
£200 DISCOUNT 2 DISK DRIVES + MONITOR + PRINTER	**PACK 4** (MONO) Keyboard £399 Disk Drive £149 Disk Drive £149 Mono Monitor £149 Printer (SMM804) £199 *Normal Price* £1045 *Discount* £200 **Pack Price £845**	**PACK 5** (COLOUR) Keyboard £399 Disk Drive £149 Disk Drive £149 Colour Monitor £299 Printer (SMM804) £199 *Normal Price* £1195 *Discount* £200 **Pack Price £995**

REDUCED PRICES

Atari's ST personal computers are now firmly established both in the USA and Europe. The main attraction of the ST range is the value for money which these computers represent, giving both private and business users a powerful asset at a very modest price. There are now several ST packages available from Silica at a reduced price, further enhancing the Atari 'Value for Money' reputation. In addition, we are giving away a FREE Silica 'ST STARTER KIT' with every 520 or 1040 ST purchased at Silica Shop. These offers will only be available for a limited period and commence on 11/8/86.

POWER FOR BUSINESS

The list below shows some of the new business products which have been recently launched for the Atari ST range. It gives an indication of the ST's potential to business buyers looking to install a powerful, low-cost system:

CP/M EMULATOR
20Mbyte HARD DISK
LOTUS 123™ CLONE
dBASE III CLONE
IBM COMPATIBILITY
VT100 EMULATOR
MICROSOFT WRITE
dBASE II

Any ST computer will provide its user with a very powerful asset, utilising a vast range of applications, particularly in the business world. Many software companies have been quick to recognise it for its business potential, and have produced programs for the ST which harness this potential. In addition, there are several peripheral and hardware products becoming available to add to the ST's 'Power For Business'. Software now available includes dBMan, a dBASE III clone as well as H&D Base, a dBASE II clone. In fact, First Software have now launched Ashton Tate's original dBASE II program for the ST. In addition, PC Intercomm is a VT100 emulator which enables you to use any ST keyboard as a terminal connected to a mainframe or mini. Other programs include a powerful accounts package by Cashlink and a Lotus 1-2-3™ clone called VIP Professional. Microsoft have announced that their powerful word processor 'Microsoft Write' will soon be available for the ST. Many packages are available for very specific market applications including a powerful CAD (Computer Aided Design) program called Easy Draw from Migraph. In addition, there is an engineering tool called PC Board Designer by Abacus Software which will enable the user to design printed circuit boards. For further details of how the ST can help in your business, return the coupon below. We will be pleased to send you our latest newsletter and price list.

PRICE MATCH PROMISE

We hope you will find that the combination of our low prices, FREE delivery service, FREE Starter Kit and after sales support, will be enough to make you buy your Atari equipment from Silica Shop. If however, there is something you wish to purchase, and you find one of our competitors offering it at a lower price, please contact Owen Pascoe (Office Manager), or one of the telesales staff in our sales department. When you telephone us, please provide us with our competitors name, address and telephone number. Providing our competitor has the goods in stock, we promise to match his offer (on a 'same product - same price' basis) and still provide you with our normal free delivery. You will also be entitled to our full after sales service, including free newsletters and technical helpline support. We don't want you to go anywhere else for your Atari products. So shop at Silica, the U.K.'s undisputed No1 Atari specialist.

FREE SOFTWARE

When you buy a 520 or 1040 ST computer keyboard from Silica Shop, you will receive a large and varied software package free of charge. This package consists of twelve programs. Wherever you purchase your Atari ST computer, you should receive the first six software titles as standard. However, if you purchase your ST from Silica, you will also receive a further six extra titles, giving you a total of twelve. All ST's now have TOS/GEM already installed on ROM, so the list of free software you should receive is as follows:

1) GEM - *DR Desktop environment with WIMP (fitted in ROM)*
2) TOS - *Tramiel Operating System (fitted in ROM)*
3) 1st WORD - *Word Processor by GST using GEM*
4) BASIC - *Personal Basic by DR (with manual)*
5) LOGO - *Logo language by DR (with manual)*
6) NEOCHROME - *A powerful colour paint and graphics package (only useable with colour systems)*

If you purchase your ST from Silica, not only will you receive the standard six pieces of software as listed above, but we will also give you the following six additional programs FREE OF CHARGE:

7) MEGAROIDS - *Asteroids type game by Megamax*
8) DOODLE - *Simple paint/doodle drawing package (works on mono or colour systems)*
9) CP/M EMULATOR - *Allows use of DR's Z80 CP/M software to run on the ST range*
10) CP/M UTILITIES - *Various utilities to use with CP/M*
11) DEMONSTRATION & PUBLIC DOMAIN SOFTWARE - *Various games, demos and accessories*
12) CARDS - *A unique set of card games from Microdeal*

These additional free software titles are all part of the FREE Silica 'ST STARTER KIT', return the coupon below for further details.

FOUR FREE MANUALS

In addition to the free software which will be given to you when you buy your ST from Silica, you will receive four free manuals:

1) **ST OWNERS MANUAL (80 pages):** *Easy access to the information you require to unpack, set-up and become familiar with the ST*
2) **ST BASIC SOURCE BOOK & TUTORIAL (240 pages):** *Gives you the information to increase your level of programming expertise*
3) **ATARI LOGO SOURCE BOOK (77 pages):** *A source book for Logo, showing how to use the language in the GEM environment*
4) **1st WORD MANUAL (48 pages):** *Instructions for 1st Word*

ST NEWSLETTER

8 PAGES OF INFORMATION TO HELP YOU TO DECIDE
RETURN THE COUPON FOR A FREE COPY

1040ST-F

For the businessman and the more serious home user, there is the 1040ST-F with 1028K RAM. This can be used in a business environment as a stand-alone system, or can support a mainframe computer as a terminal. The 1040ST-F keyboard with integral 1Mb disk drive costs only £699 (+VAT=£803.85). As the 1040ST-F was manufactured solely with business use in mind, it does not come with an RF modulator for use with a domestic TV. Instead, it requires a monitor. There are three Atari monitors available and the prices for the 1040 with these monitors are as follows:

1040 Keyboard Without Monitor - **£699** *(+VAT= £803.85)*
1040 Keyboard + High res mono monitor - **£799** *(+VAT= £918.85)*
1040 Keyboard + Low res colour monitor - **£899** *(+VAT=£1033.85)*
1040 Keyboard + Med res colour monitor - **£999** *(+VAT=£1148.85)*

The 1040ST-F includes 1Mbyte of RAM as well as a 1Mbyte double sided disk drive and mains transformer, both built into the keyboard to give a compact and stylish unit, with only one mains lead. The 1040ST-F is supplied with a set of software disks as well as our own FREE Silica 'ST STARTER PACK'. Call into your nearest branch of Silica Shop for a demonstration.

1-4 The Mews, Hatherley Road, Sidcup, Kent, DA14 4DX
117 Orpington High Street, Orpington, Kent, BR6 0LG
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At Silica we have been successfully dedicated to Atari ever since their products first appeared on the UK market. We can attribute our success largely to the Atari specialisation which we practice and to the user back-up we provide. Rest assured that when you buy a piece of Atari hardware at Silica you will be fully supported. Our mailings giving news of software releases and developments will keep you up to date with the Atari market and our technical support team and sales staff are at the end of the telephone line to deal with your problems and supply your every need. With our specialist bias, we aim to keep stocks of all the available Atari hardware, software, peripherals and accessories. We also stock a wide range of Atari dedicated books and through us, the owners on our list can subscribe to several American Atari dedicated magazines. We can provide a full service to all Atari owners and are now firmly established as the UK's NUMBER ONE Atari specialists. Here are just some of the things we can offer to our customers.

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If you would like to be registered on our mailing list as an Atari computer owner, or as a person interested in buying an Atari machine, let us know. We will be pleased to keep you up to date with new Atari developments free of charge. So, return the coupon today and begin experiencing a specialist Atari service that is second to none.

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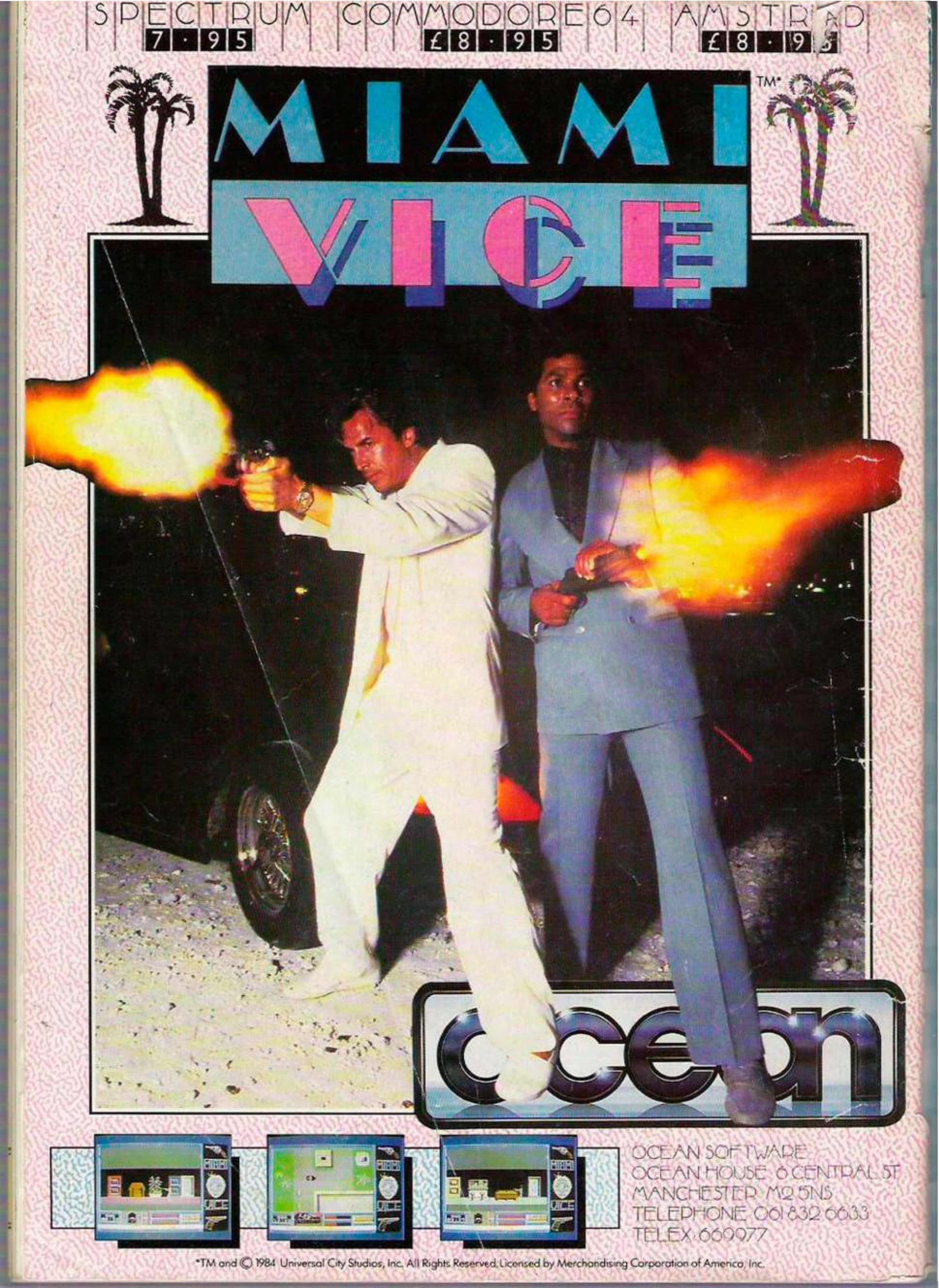
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